PB-245 558

DIRECT FILTRATION OF LAKE SUPERIOR WATER FOR ASBESTIFORM FIBER REMOVAL. APPENDIX D. HEAD LOSS AND TURBIDITY CURVES FOR INDIVUDUAL FILTER RUNS

Black and Veatch

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June 1975

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Environmental Protection Technology Series

DIRECT FILTRATION OF LAKE SUPERIOR WATER FOR ASBESTIFORM FIBER REMOVAL

Appendix D

National Environmental Research Center
Office of Research and Development
U.S. Environmental Protection Agency
Cincinnati, Ohio 45268

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(Please read Instructions on the reverse before completing)

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16. ABSTRACT

Pilot plant research conducted in 1974 at Duluth, Minnesota, demonstrated that asbestiform fiber counts'in Lake Superior water could be effectvely reduced by municipal filtration plants. During the study, engineering data were also obtained for making cost estimates for construction and operation of both granular and diatomaceous earth (DE) filtration plants ranging in size from 0.03 to 30 mgd. In Appendix D, all graphs of filter head loss and effluent turbidity as functions of the number of hours of filter operation are given. These graphs and the individual filter run data presented in Appendix C could be used to evaluate filter performance under circumstances in which the production of clear, potable water is the goal, rather than the removal of asbestiform fibers.

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June 1975

DIRECT FILTRATION OF LAKE SUPERIOR WATER FOR ASBESTIFORM FIBER REMOVAL

Appendix D

Head Loss and Turbidity Curves for Individual Filter Runs

By

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Kansas City, Missouri 64114

Program Element No. 1CB047
Contract No. DACW 37-74-C-0079
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Project Officer

Gary S. Logsdon
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National Environmental Research Center
Cincinnati, Ohio 45268

NATIONAL ENVIRONMENTAL RESEARCH CENTER
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
CINCINNATI, OHIO 45268

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FOREWORD

Man and his environment must be protected from the adverse effects of pesticides, radiation, noise, and other forms of pollution, and the unwise management of solid waste. Efforts to protect the environment require a focus that recognizes the interplay between the components of our physical environment -- air, water, and land. The National Environmental Research Centers provide this multidisciplinary focus through programs engaged in

- studies on the effects of environmental contamination on man and the biosphere, and
- a search for ways to prevent contamination and to recycle valuable resources.

This report and its appendices present the results of pilot plant filtration research for the removal of asbestiform fibers from drinking water. The several appendices present detailed information on water quality, pilot plant equipment and operation, individual filter run data, asbestiform fiber and amphibole mass concentrations in raw and filtered water, and diatomite filter optimization. Appendix D is a compilation of all available graphs of filter head loss and effluent turbidity.

A. W. Breidenbach, Ph.D.
Director
National Environmental
Research Center, Cincinnati

ABSTRACT

Pilot plant research conducted in 1974 at Duluth, Minnesota demonstrated that asbestiform fiber counts in Lake Superior water could be effectively reduced by municipal filtration plants. During the study, engineering data were also obtained for making cost estimates for construction and operation of both granular and diatomaceous earth (DE) filtration plants ranging in size from 0.03 to 30 mgd.

In Appendix D, all graphs of filter headloss and effluent turbidity as functions of the number of hours of filter operation are given. These graphs and the individual filter run data presented in Appendix C could be used to evaluate filter performance under circumstances in which the production of clear, potable water is the goal, rather than the removal of asbestiform fibers.

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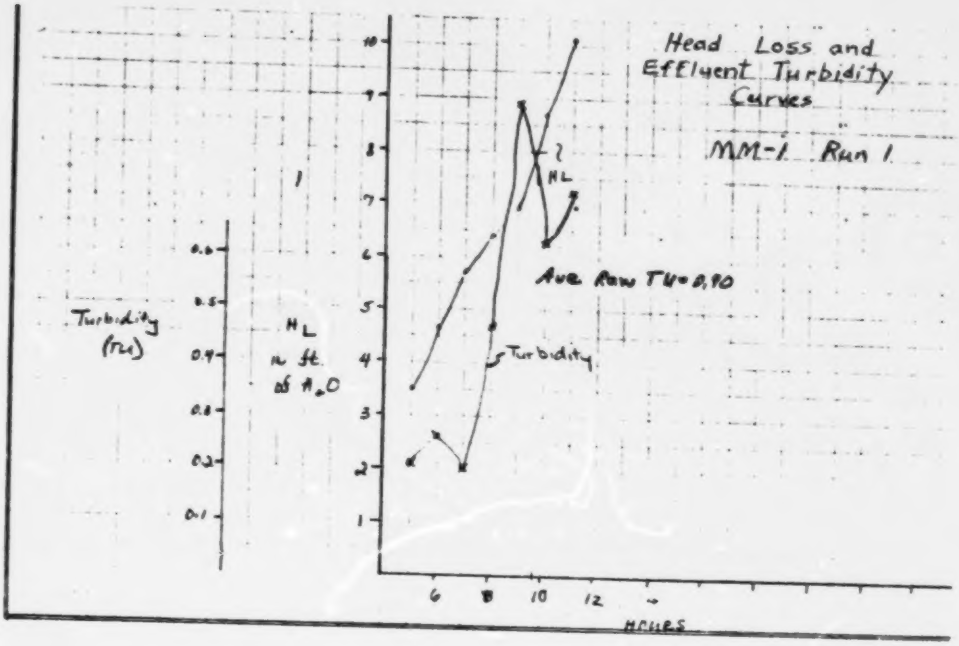
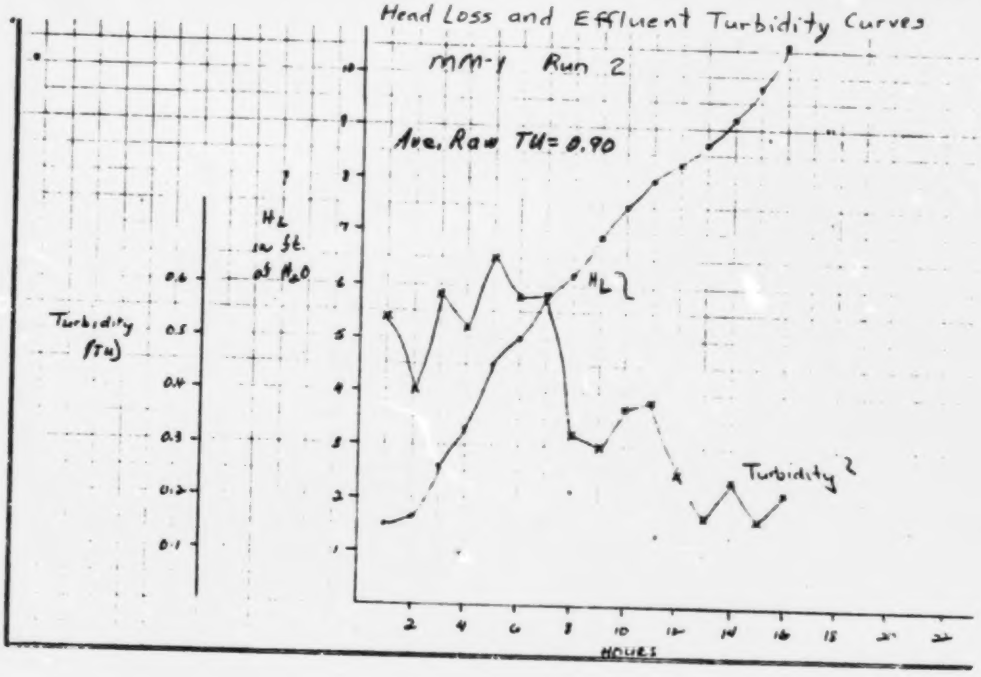
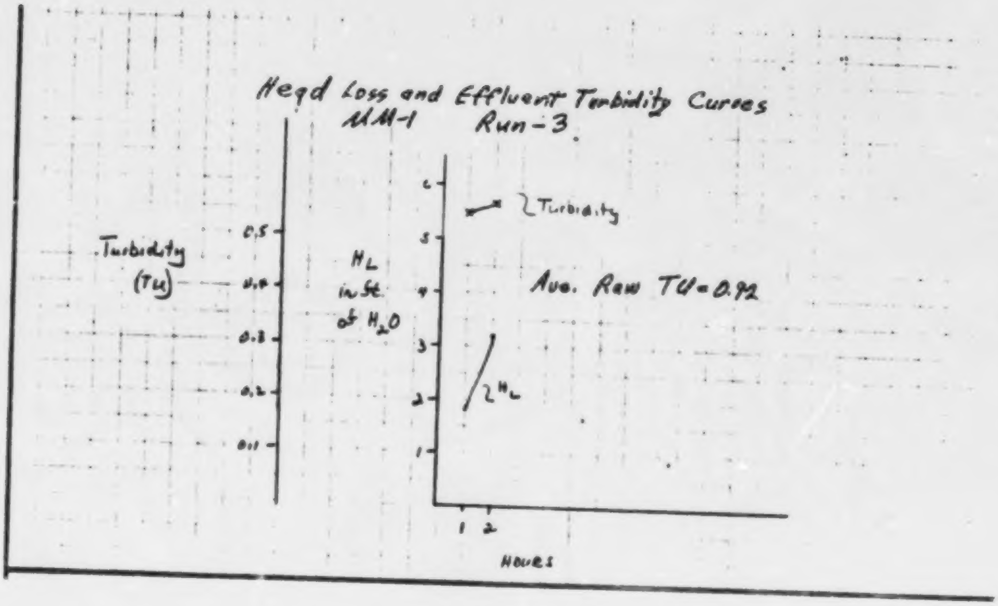
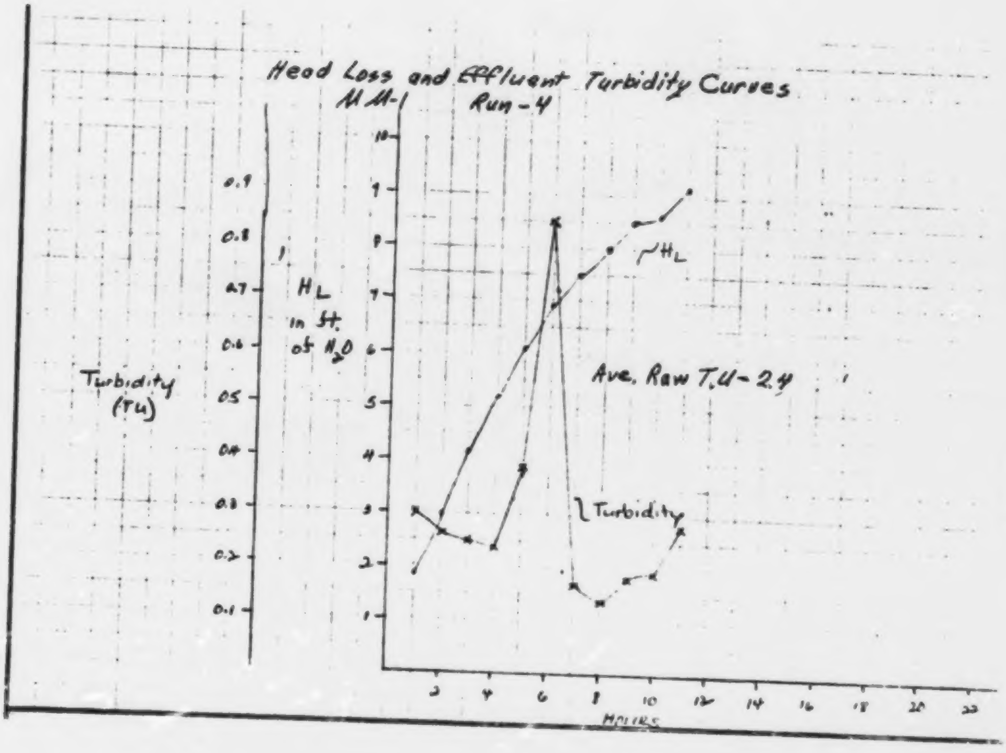
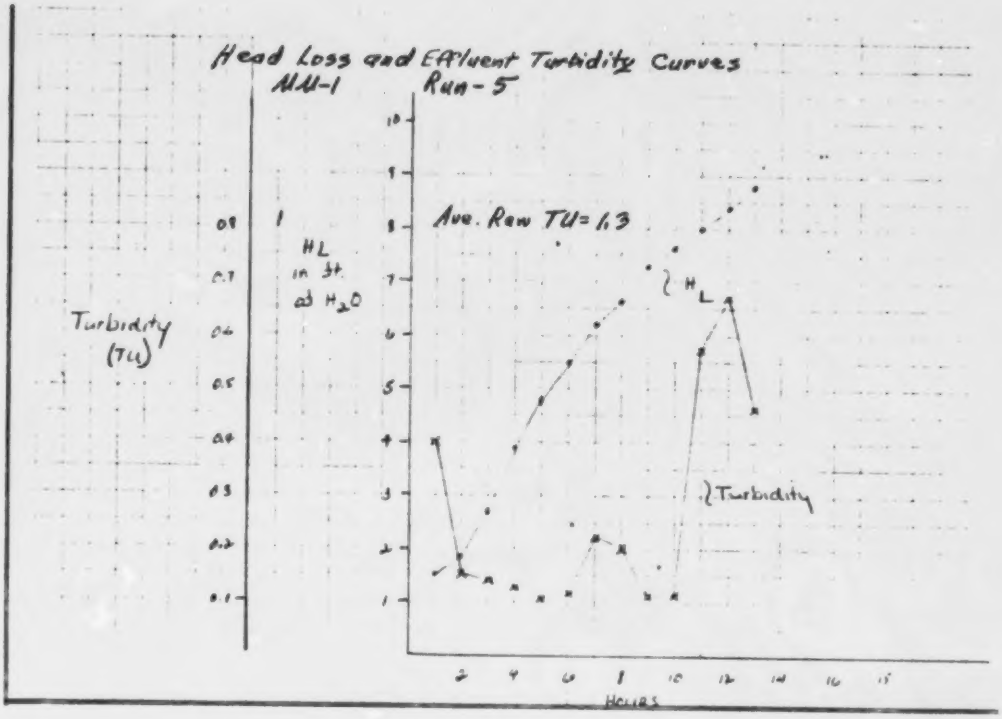
APPENDIX D-1 - GRANULAR MEDIA FILTRATION (MM-1) HEAD LOSS AND TURBIDITY CURVES

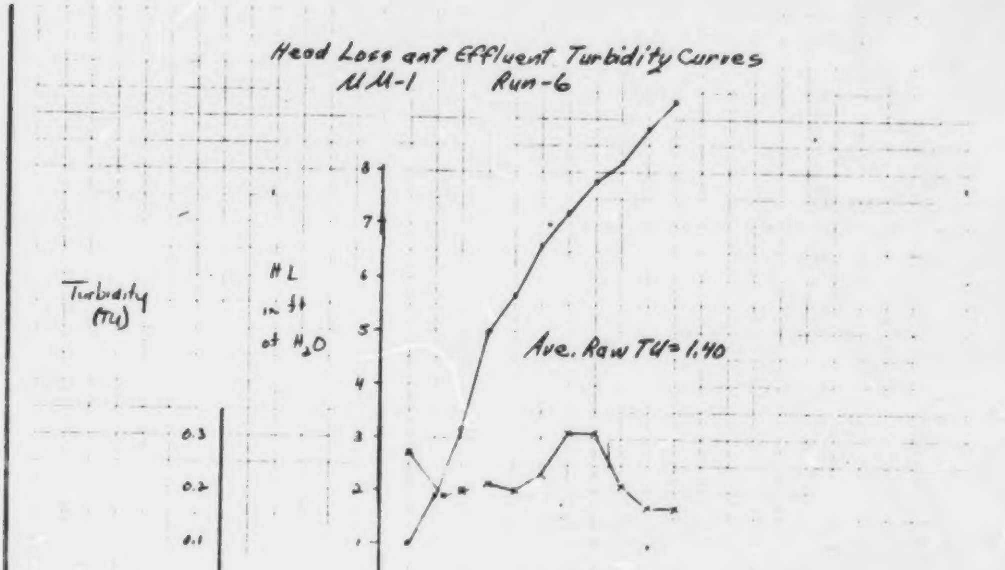


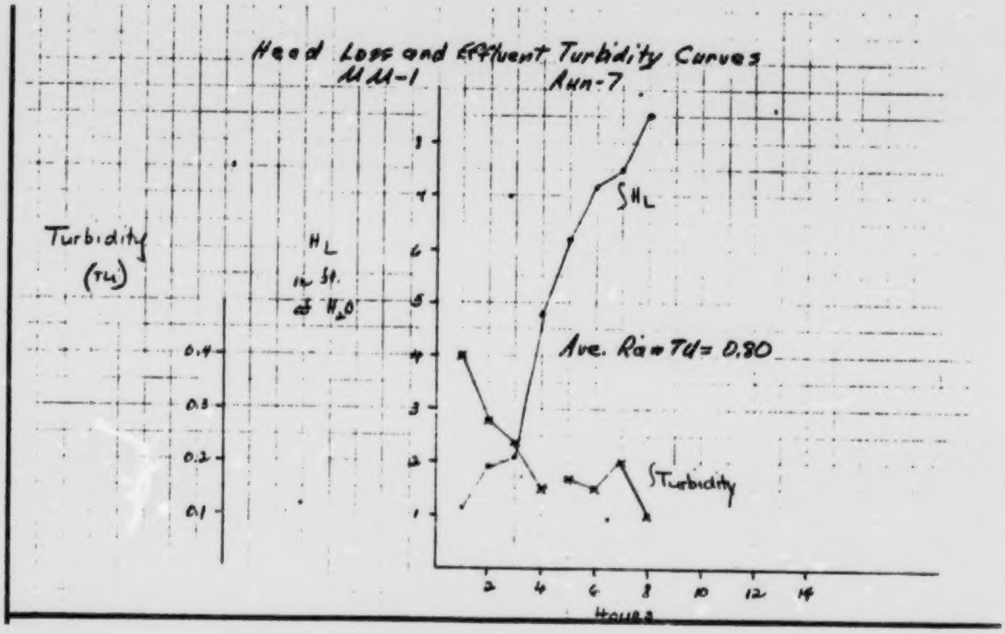


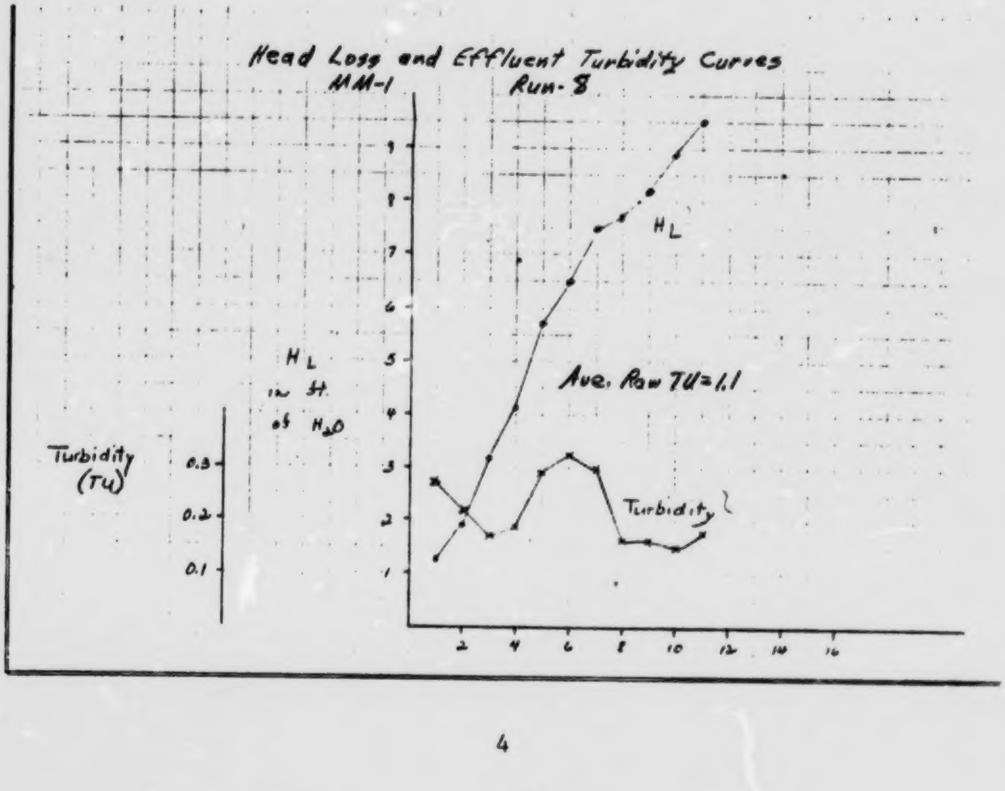

Head Loss and Effluent Turbidity Curves
MM-1 Run-3
Turbidity (TU)
0.5
0.4
0.3
0.2
0.1
HL in ft. of H2O
6
5
4
3
2
1
Turbidity
HL
Ave. Raw TU=0.92
1
2
Hours

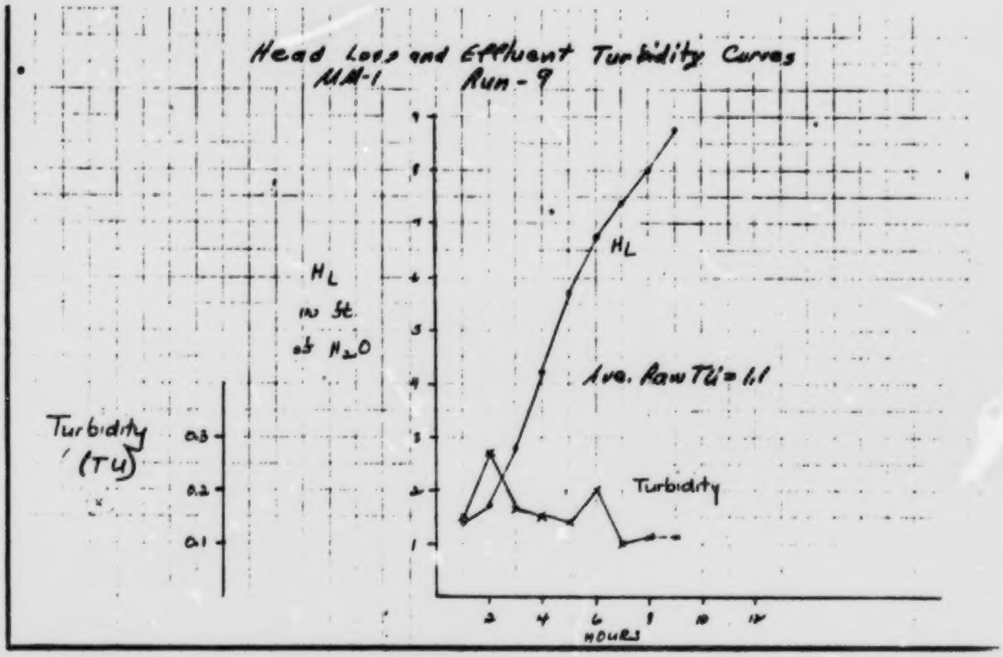

Head Loss and Effluent Turbidity Curves
MM-1 Run-4
Turbidity (TU)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
HL in ft. of H2O
10
9
8
7
6
5
4
3
2
1
HL
Turbidity
Ave. Raw T.U-2.4
2
4
6
8
10
12
14
16
18
20
22
Hours

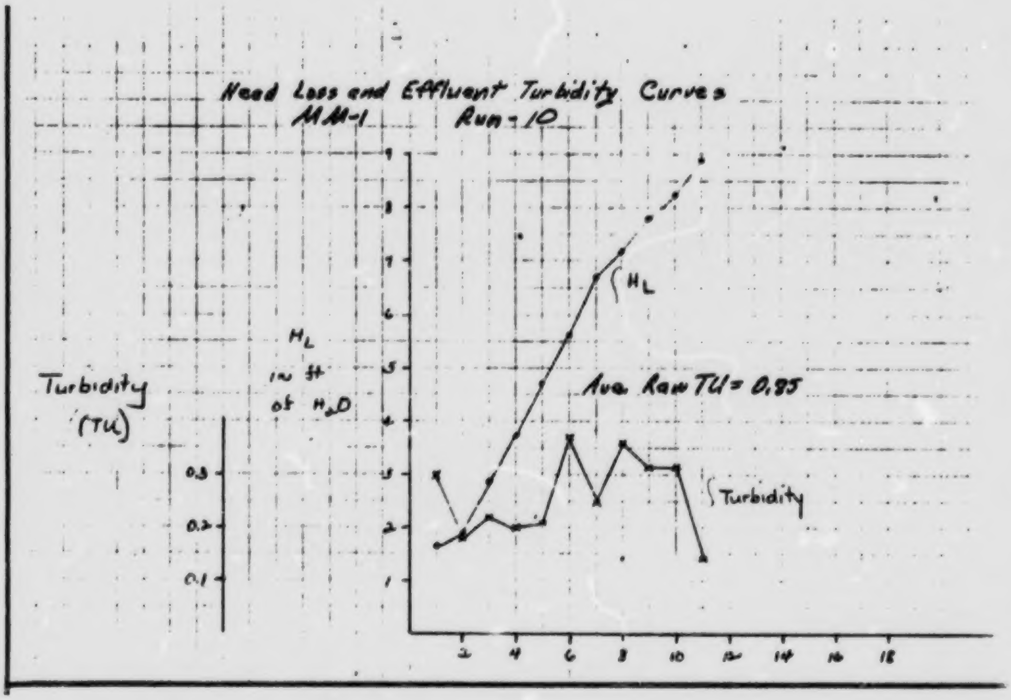

Head Loss and Effluent Turbidity Curves
MM-1 Run-5
Ave. Raw TU=1.3
Turbidity (TU)
HL in ft of H_2O
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
1
2
3
4
5
6
7
8
9
10
} H_L
} Turbidity
2
4
6
8
10
12
14
16
18
Hours

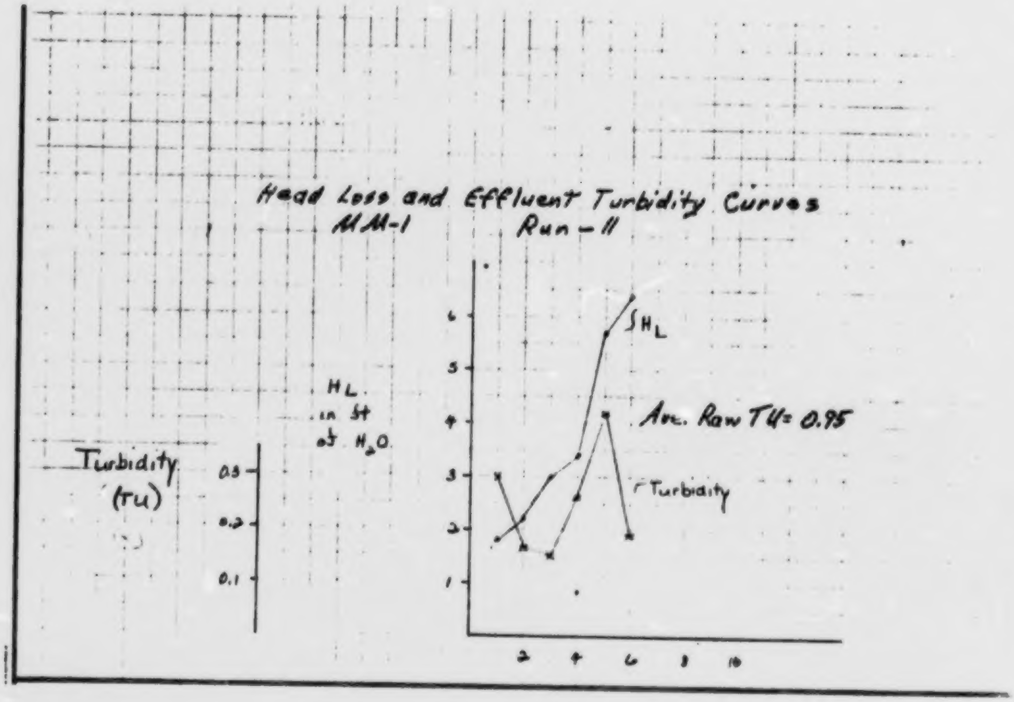

Head Loss and Effluent Turbidity Curves
MM-1 Run-6
Ave. Raw TU=1.40
Turbidity (TU)
HL in ft of H_2O
0.1
0.2
0.3
1
2
3
4
5
6
7
8
2
4
6
8
10
Hours


Head Loss and Effluent Turbidity Curves
MM-1 Run-7

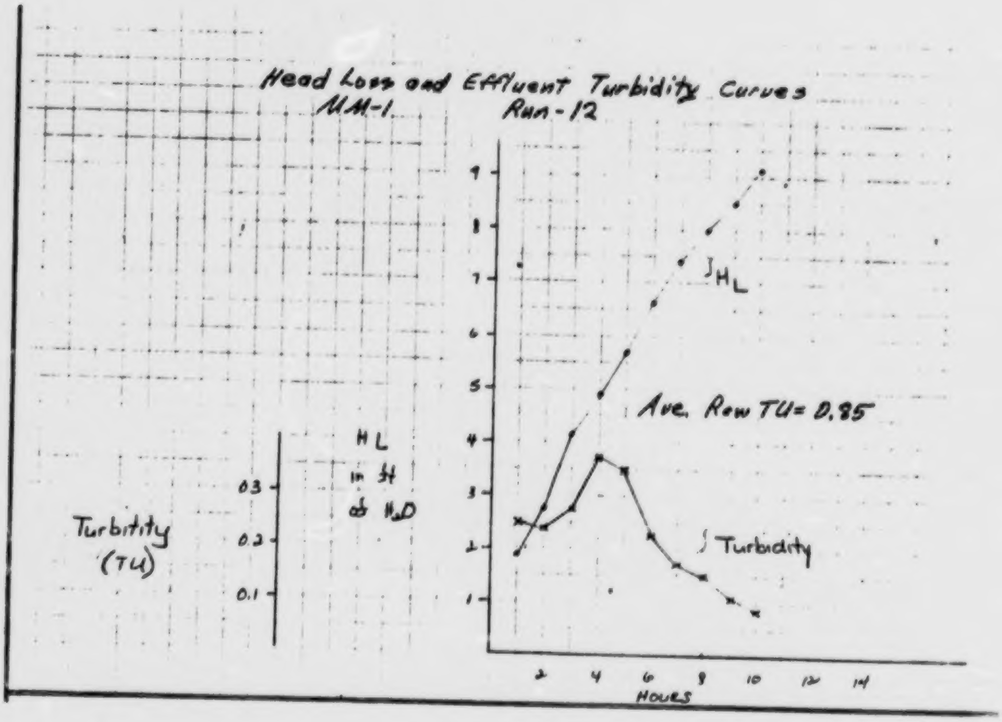

Head Loss and Effluent Turbidity Curves
MM-1 Run-8


Head Loss and Effluent Turbidity Curves
MM-1 Run-9
H_L in ft. of H_2O
Turbidity (TU)
0.3
0.2
0.1
1
2
3
4
5
6
7
8
9
H_L
Ave. Raw TU = 1.1
Turbidity
2
4
6
8
10
12
HOURS

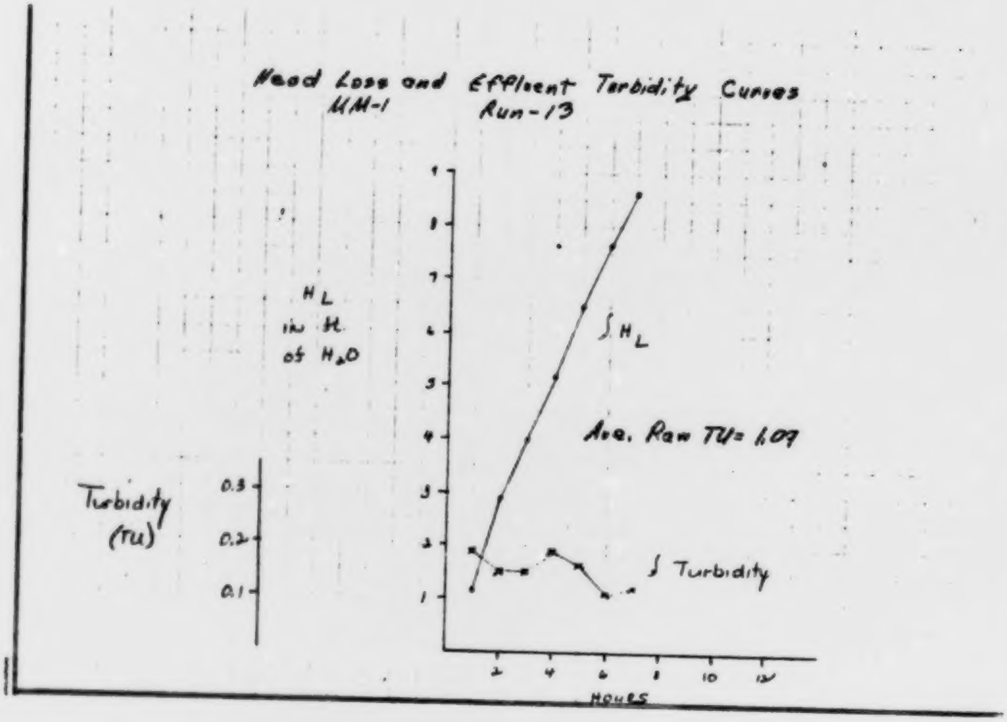

Head Loss and Effluent Turbidity Curves
MM-1 Run-10
H_L in ft of H_2O
Turbidity (TU)
0.3
0.2
0.1
1
2
3
4
5
6
7
8
9
H_L
Ave. Raw TU = 0.85
Turbidity
2
4
6
8
10
12
14
16
18



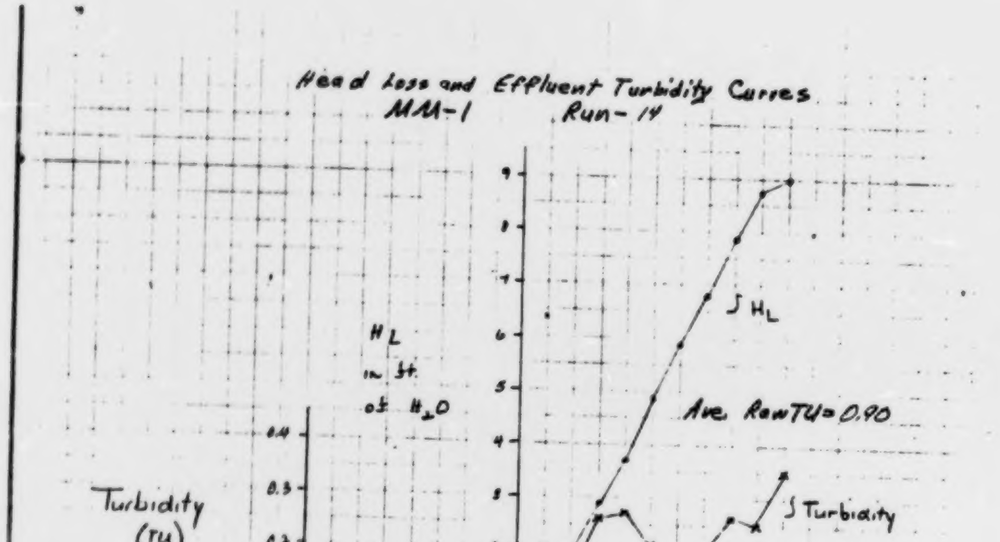
Head Loss and Effluent Turbidity Curves
MM-1 Run-11
H L. in ft of H₂O.
Turbidity (TU)
0.3
0.2
0.1
1
2
3
4
5
6
2
4
6
8
10
H L
Ave. Raw TU= 0.95
Turbidity



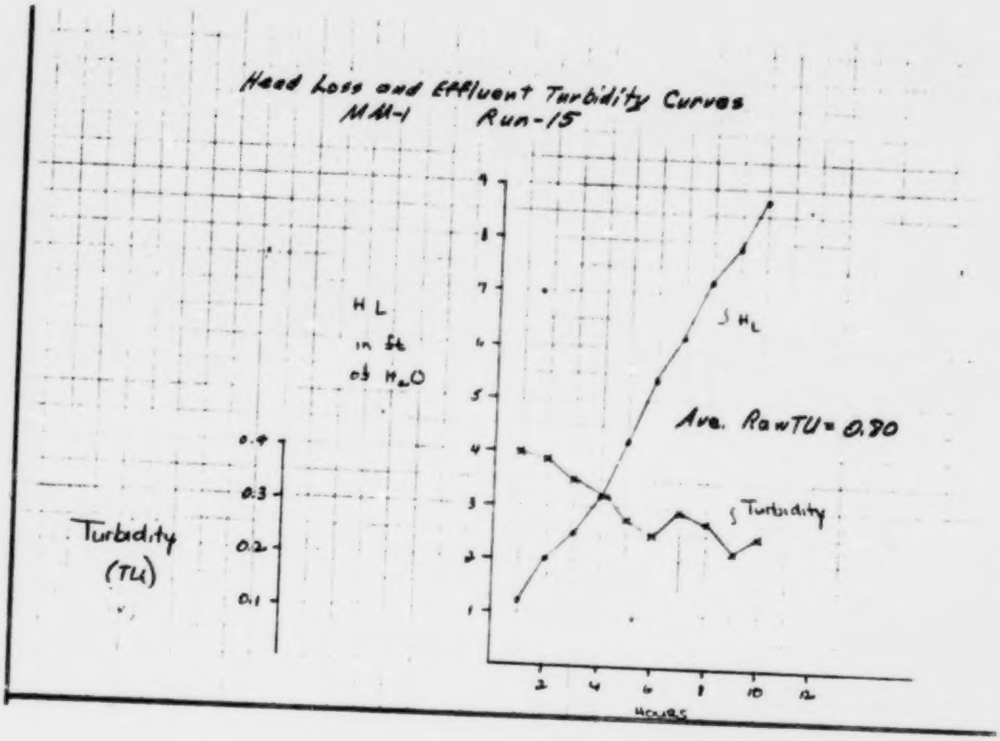
Head Loss and Effluent Turbidity Curves
MM-1. Run-12
H L in ft of H₂O
Turbitity (TU)
0.3
0.2
0.1
1
2
3
4
5
6
7
8
9
2
4
6
8
10
12
14
HOURS
H L
Ave. Raw TU= 0.85
Turbidity

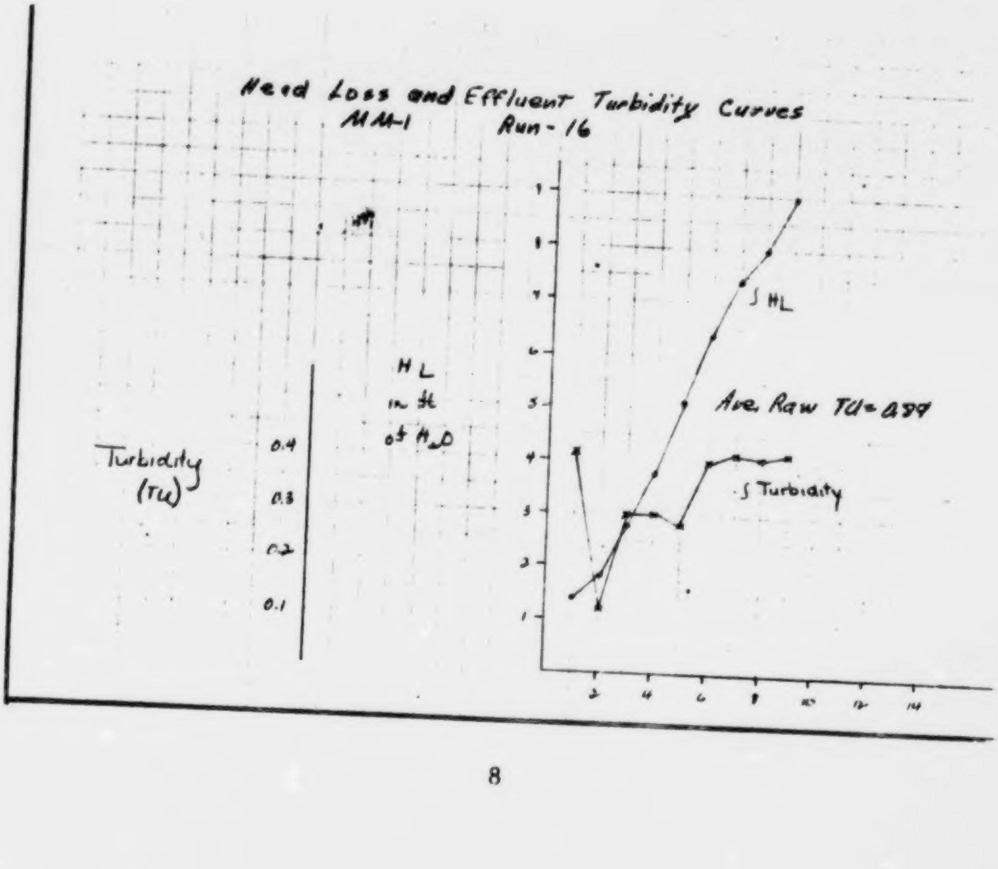


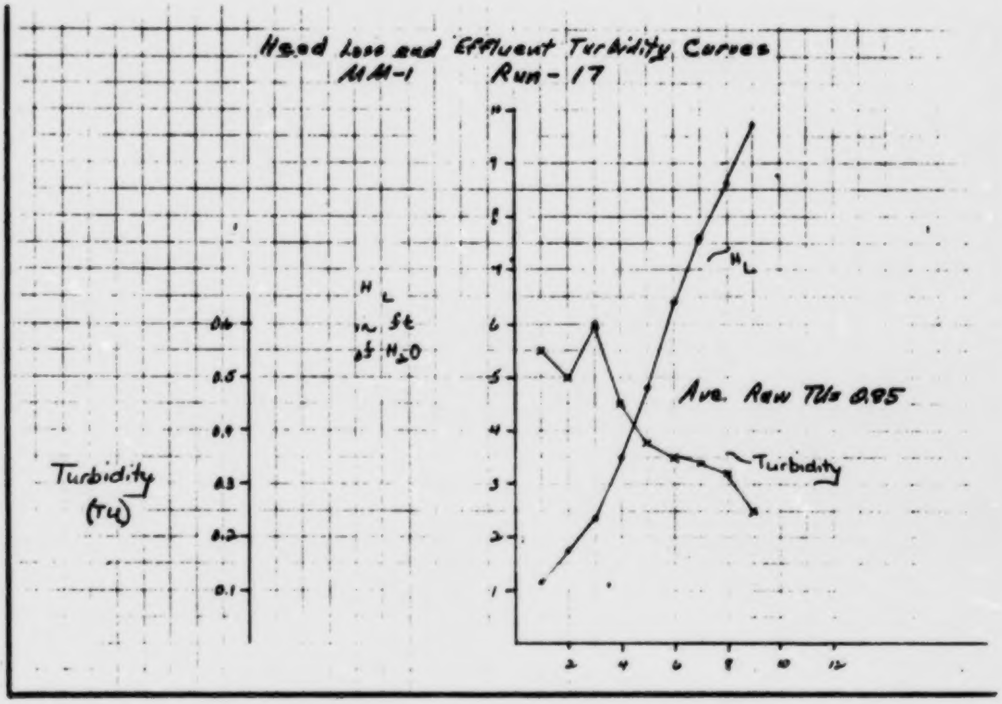
Head Loss and Effluent Turbidity Curves
MM-1 Run-13

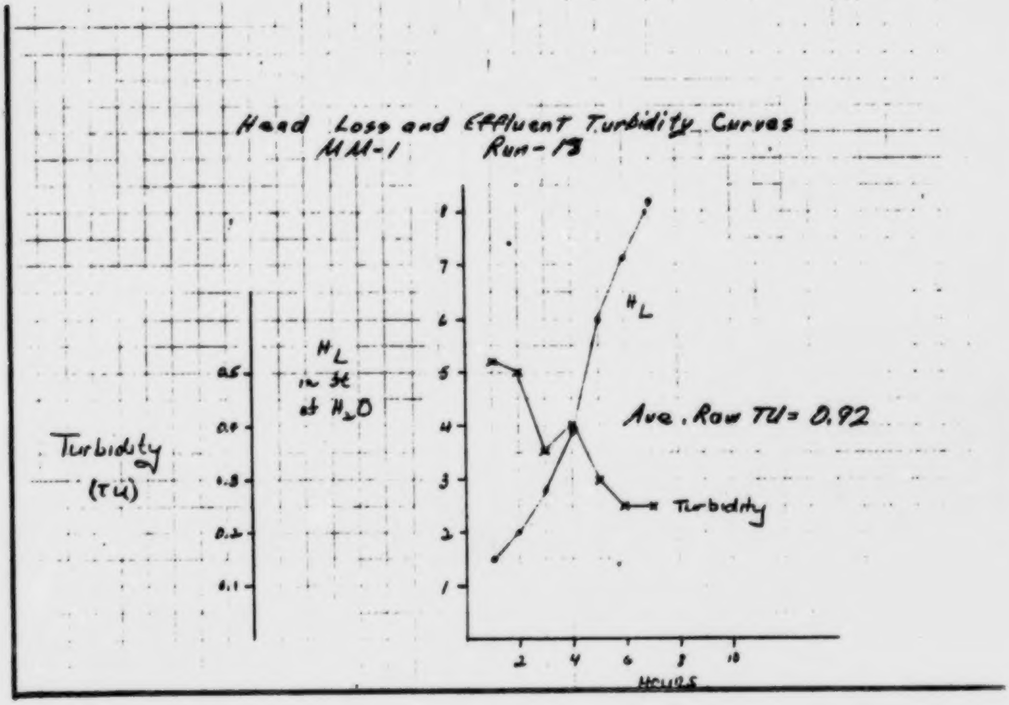


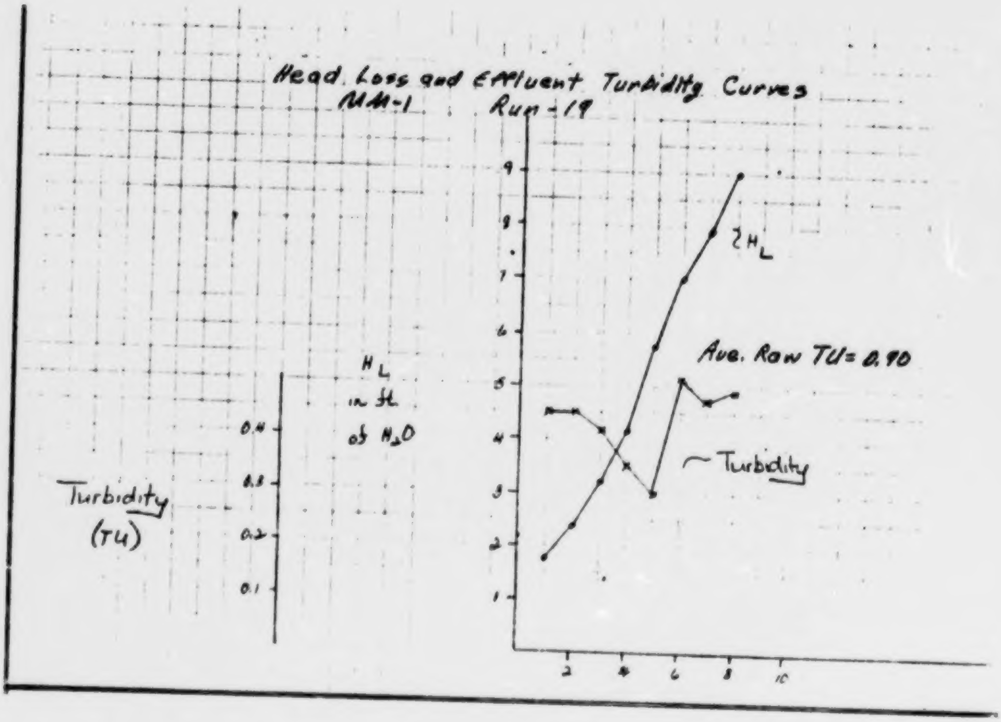
Head Loss and Effluent Turbidity Curves
MM-1 Run-14

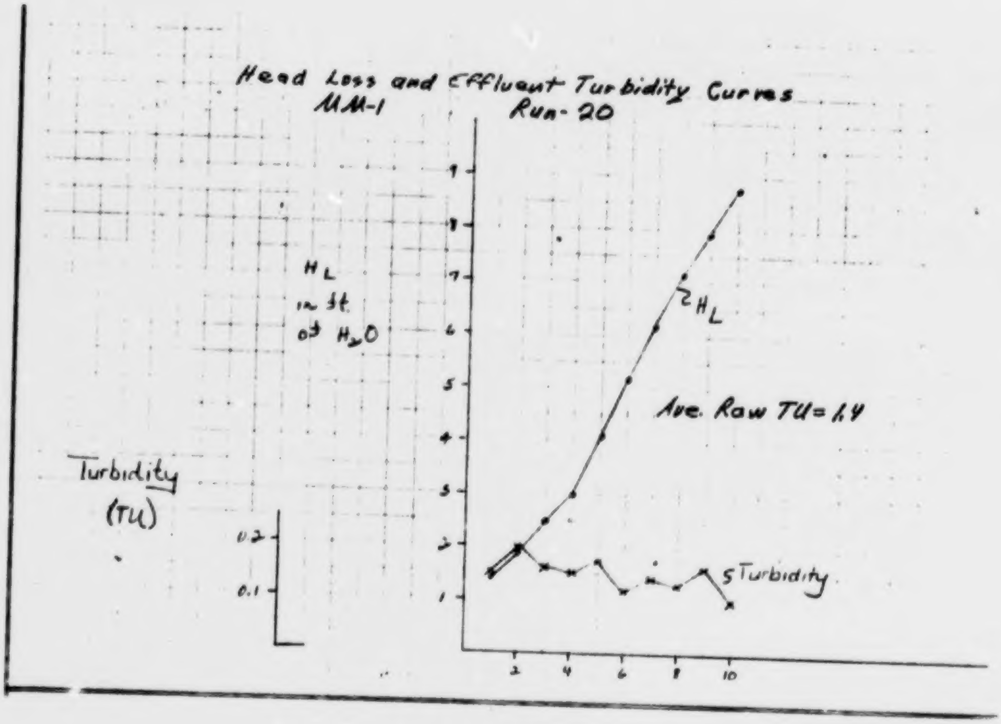

Head Loss and Effluent Turbidity Curves
MM-1 Run-15
H L
in ft
of H_2O
Turbidity
(TU)
0.4
0.3
0.2
0.1
9
8
7
6
5
4
3
2
1
2
4
6
8
10
12
hours
H_L
Ave. RawTU = 0.80
Turbidity

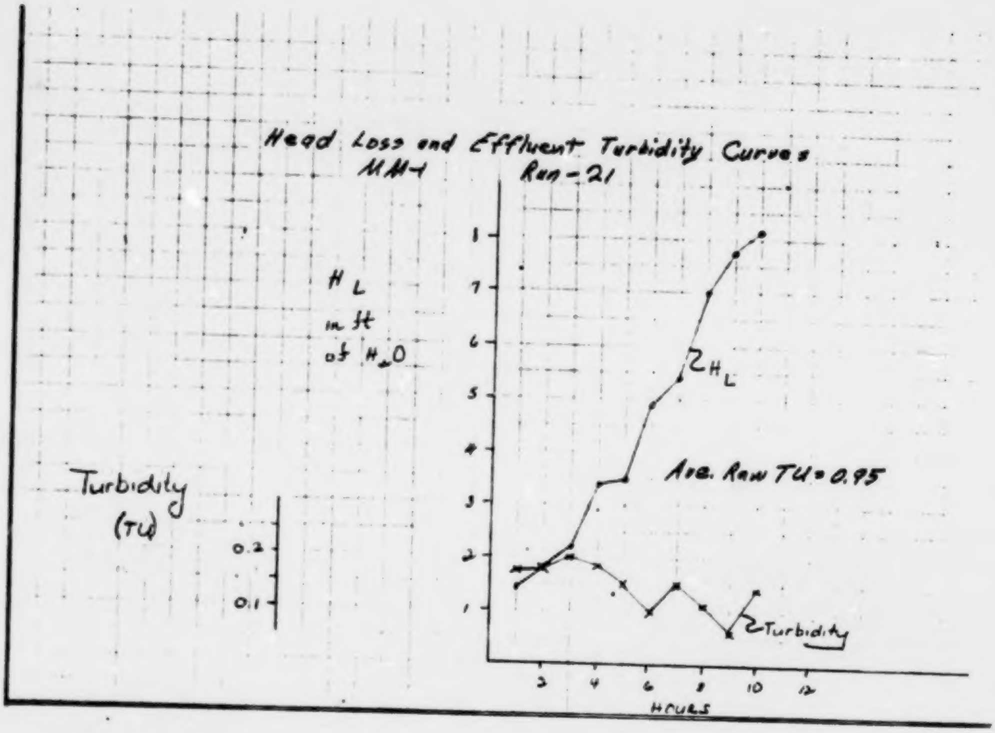

Head Loss and Effluent Turbidity Curves
MM-1 Run-16
H L
in ft
of H_2O
Turbidity
(TU)
0.4
0.3
0.2
0.1
9
8
7
6
5
4
3
2
1
2
4
6
8
10
12
14
HL
Ave. Raw TU = 0.89
Turbidity

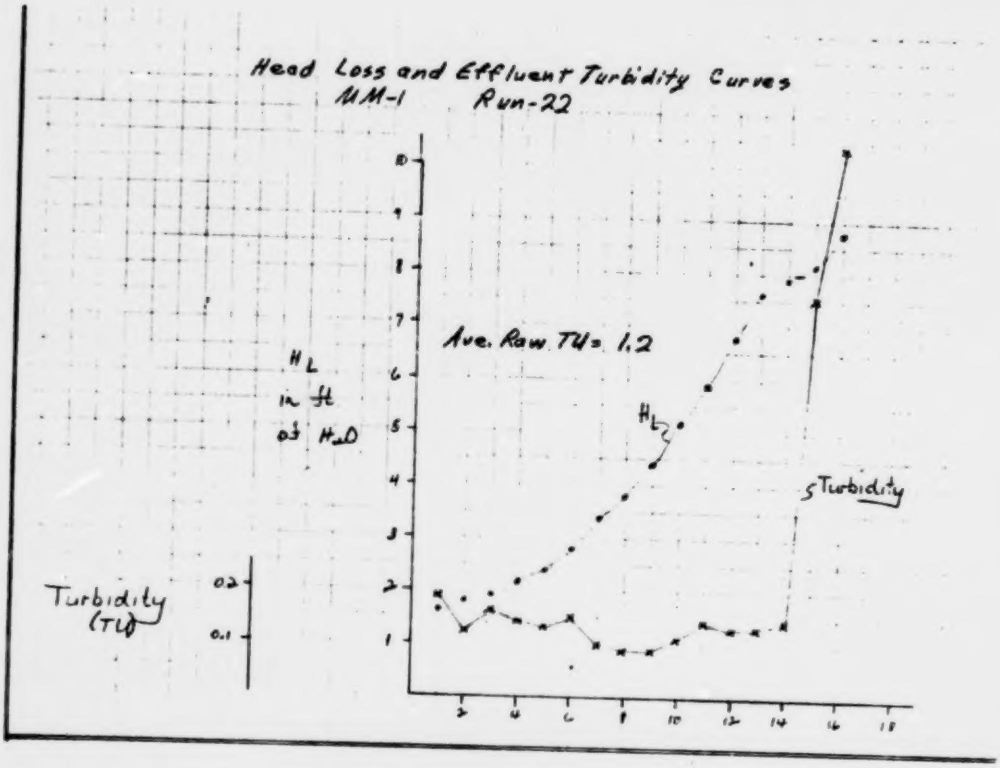

Head Loss and Effluent Turbidity Curves
MM-1 Run - 17
HL in ft of H2O
Turbidity (TU)
0.6
0.5
0.4
0.3
0.2
0.1
10
9
8
7
6
5
4
3
2
1
2
4
6
8
10
12
HL
Ave. Raw TU= 0.95
Turbidity


Head Loss and Effluent Turbidity Curves
MM-1 Run - 18
HL in ft of H2O
Turbidity (TU)
0.5
0.4
0.3
0.2
0.1
8
7
6
5
4
3
2
1
2
4
6
8
10
Hours
HL
Ave. Raw TU= 0.92
Turbidity


Head Loss and Effluent Turbidity Curves
MM-1
Run-19
Turbidity (TU)
0.4
0.3
0.2
0.1
H_L in ft of H_2O
1
2
3
4
5
6
7
8
9
H_L
Ave. Raw TU= 0.90
Turbidity
2
4
6
8
10


Head Loss and Effluent Turbidity Curves
MM-1
Run-20
Turbidity (TU)
0.2
0.1
H_L in ft of H_2O
1
2
3
4
5
6
7
8
9
H_L
Ave. Raw TU= 1.4
Turbidity
2
4
6
8
10


Head Loss and Effluent Turbidity Curves
MM-1 Run-21
H L in ft of H2O
Turbidity (TU)
0.2
0.1
8
7
6
5
4
3
2
1
H L
Ave. Raw TU = 0.95
Turbidity
2
4
6
8
10
12
Hours


Head Loss and Effluent Turbidity Curves
MM-1 Run-22
10
9
8
7
6
5
4
3
2
1
Ave. Raw TU = 1.2
H L in ft of H2O
H L
Turbidity
Turbidity (TU)
0.2
0.1
2
4
6
8
10
12
14
16
18

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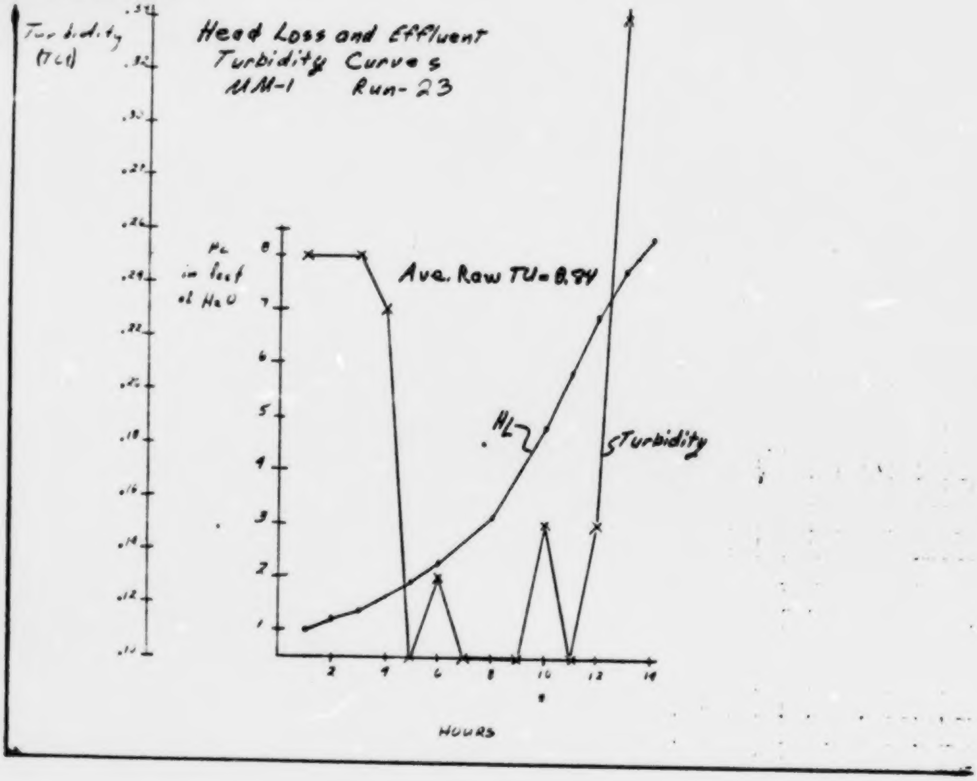
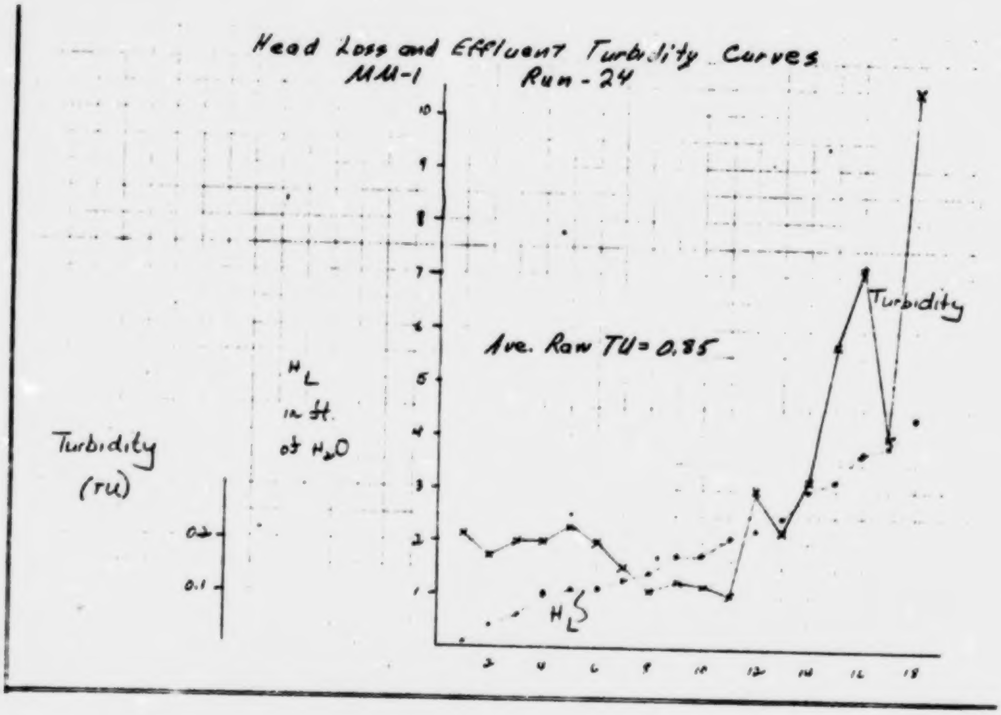
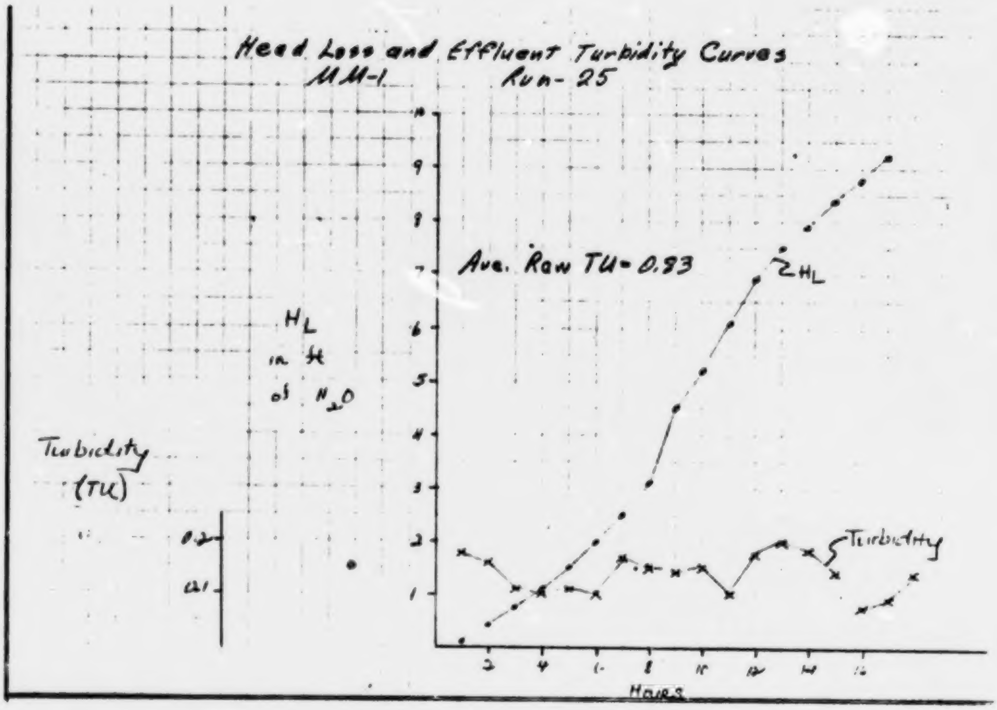
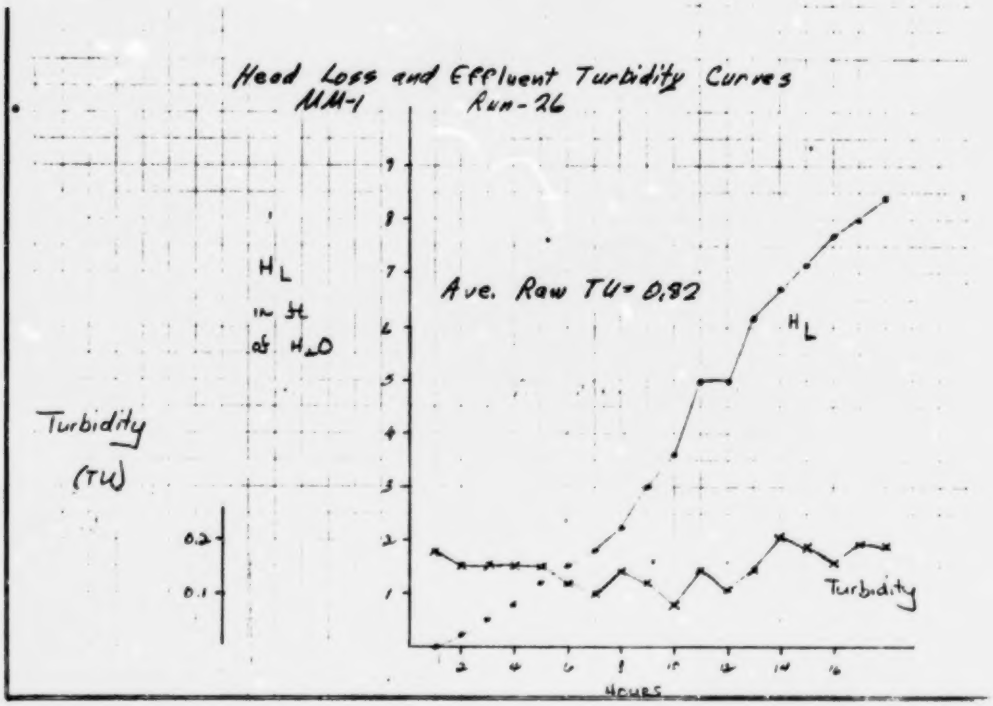
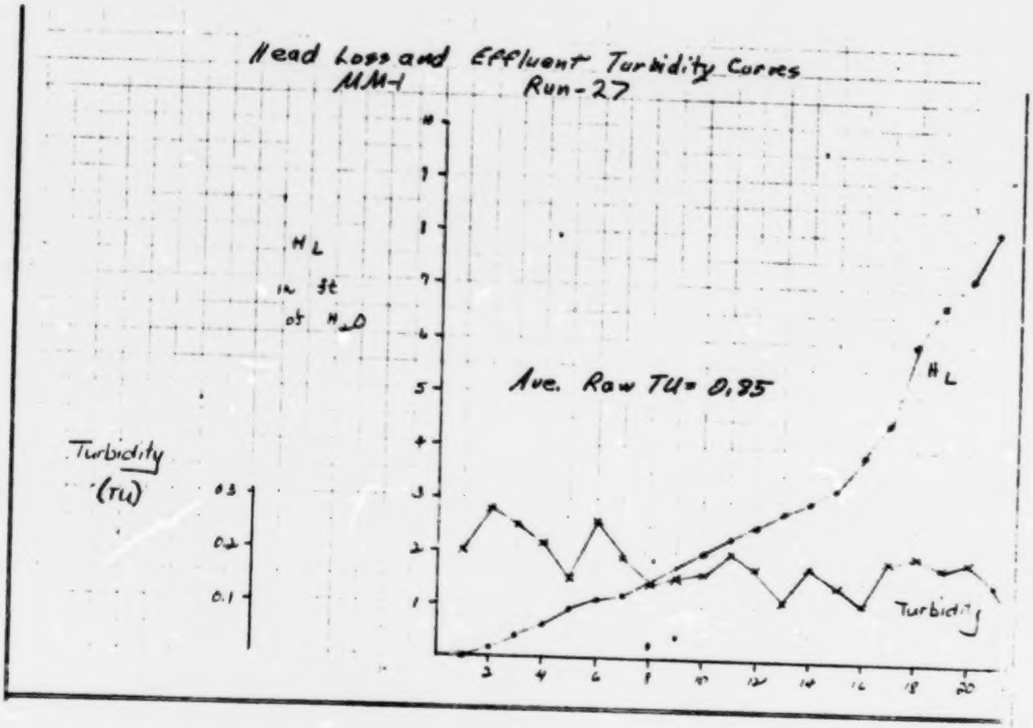
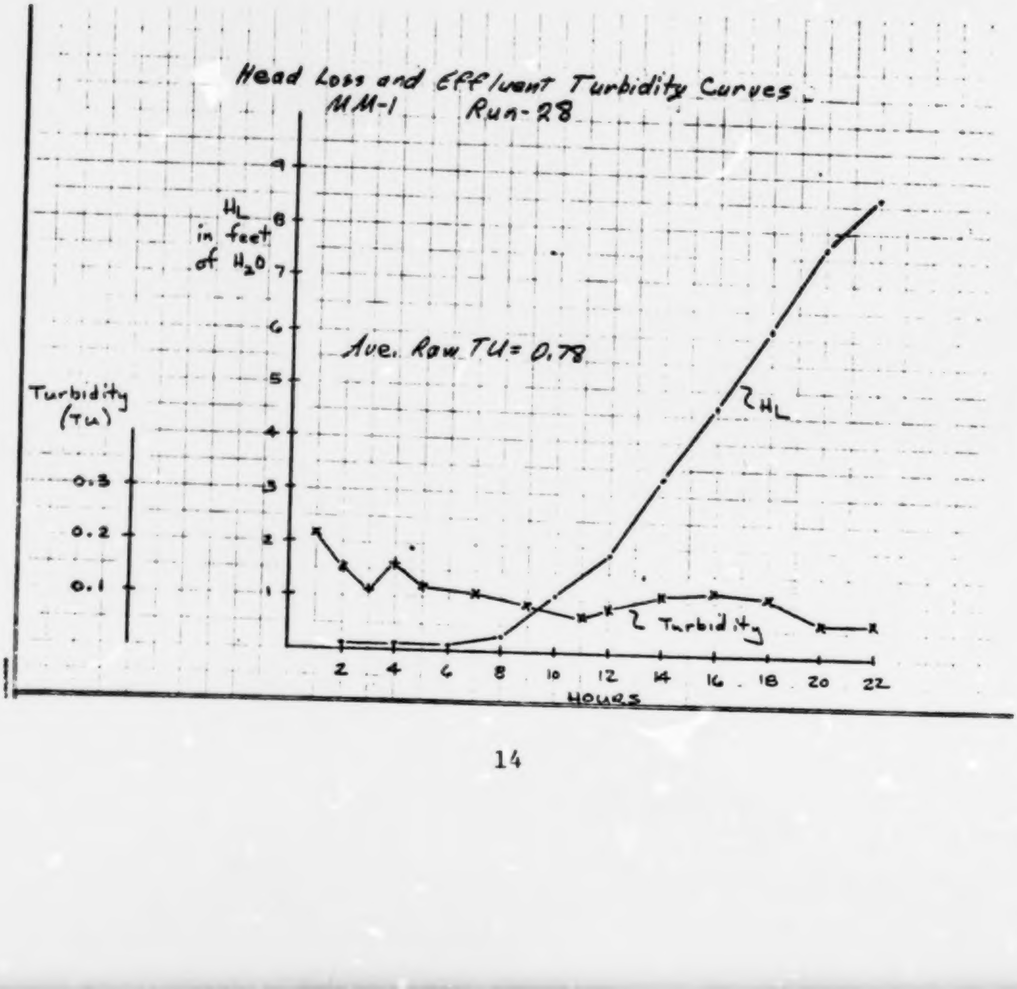


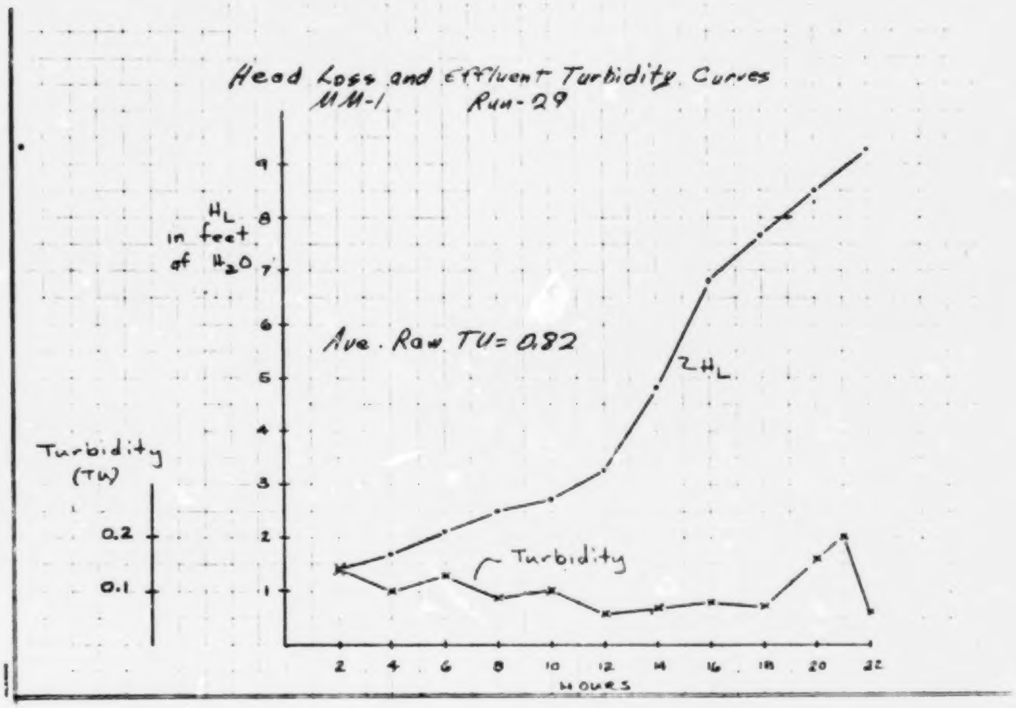


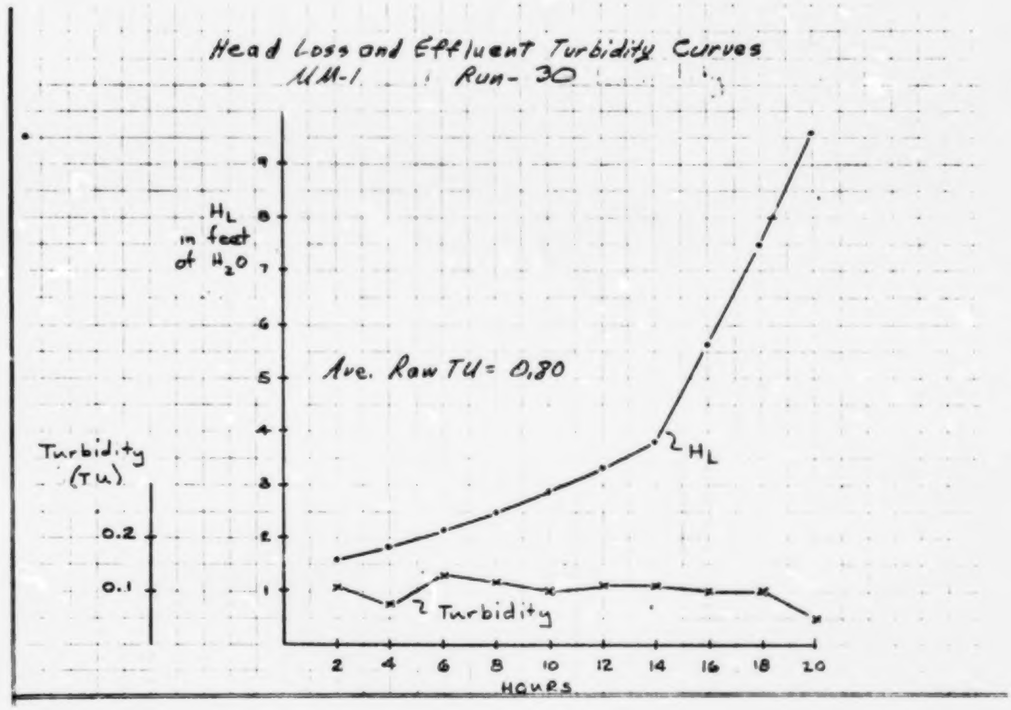

Head Loss and Effluent Turbidity Curves
MM-1 Run-25
Ave. Raw TU = 0.83
HL in ft of H2O
Turbidity (TU)
0.2
0.1
10
9
8
7
6
5
4
3
2
1
2
4
6
8
10
12
14
16
Hours
HL
Turbidity

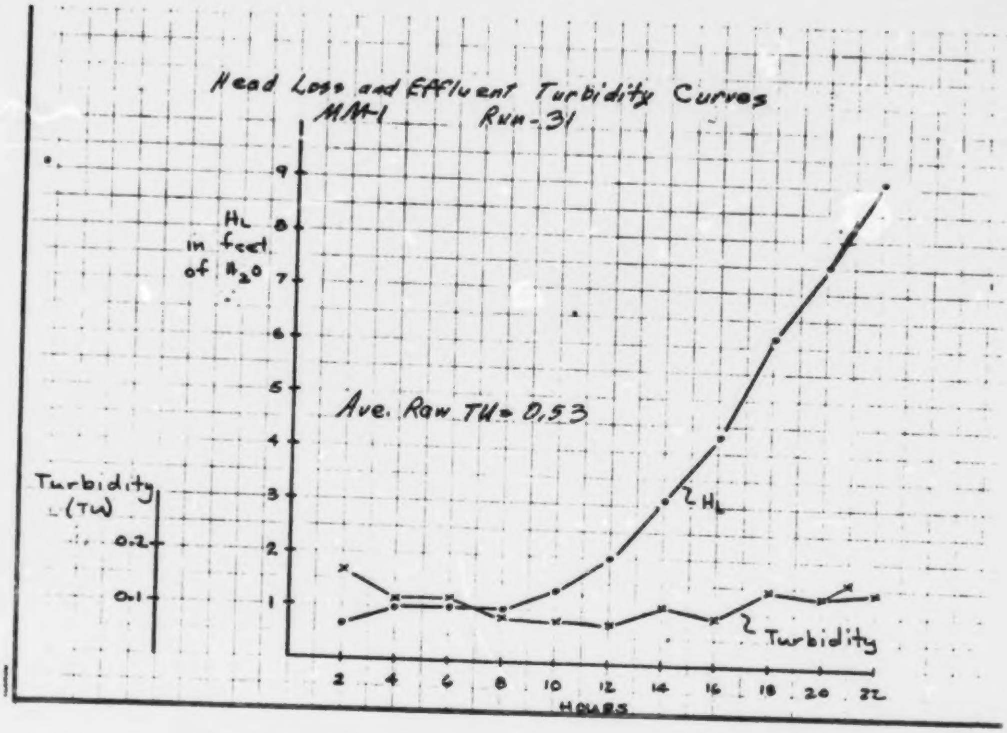

Head Loss and Effluent Turbidity Curves
MM-1 Run-26
Ave. Raw TU = 0.82
HL in ft of H2O
Turbidity (TU)
0.2
0.1
9
8
7
6
5
4
3
2
1
2
4
6
8
10
12
14
16
Hours
HL
Turbidity

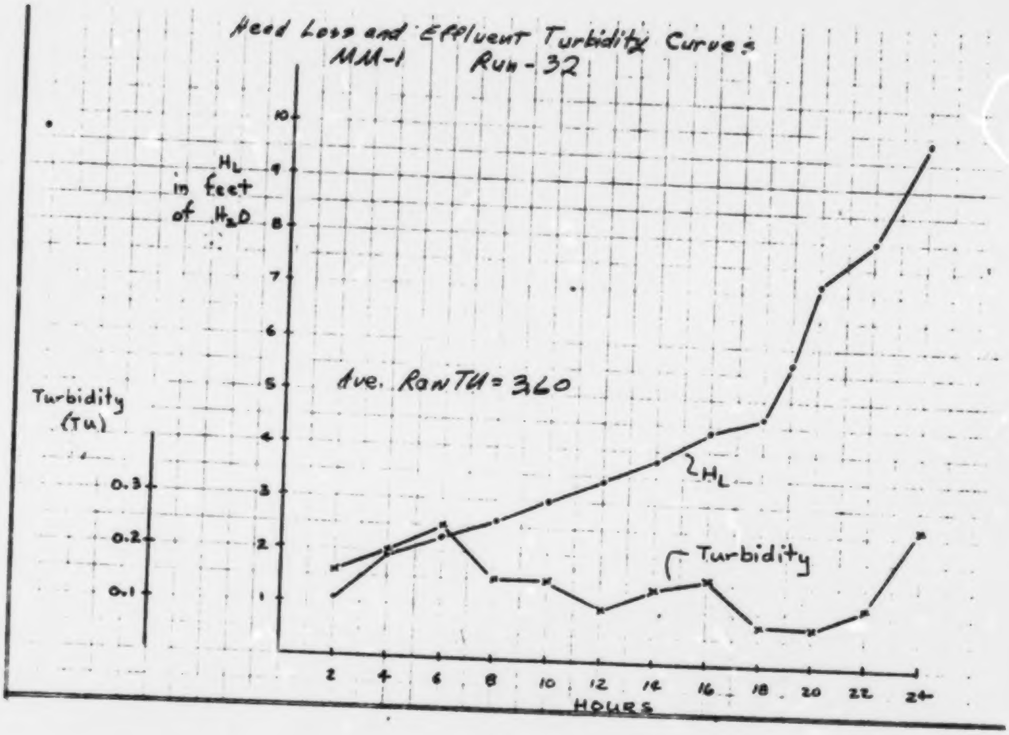

Head Loss and Effluent Turbidity Curves
MM-1 Run-27
HL in ft of H2O
Turbidity (TU)
Ave. Raw TU= 0.85
HL
Turbidity
0.3
0.2
0.1
1
2
3
4
5
6
7
8
9
3
4
6
8
10
12
14
16
18
20

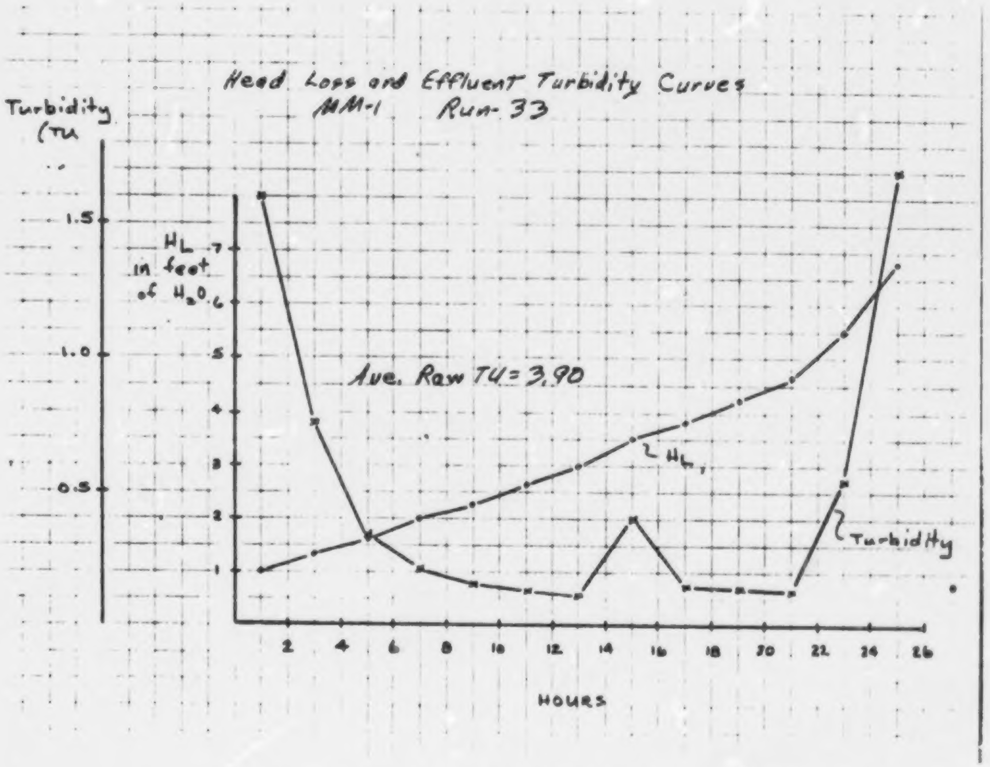

Head Loss and Effluent Turbidity Curves
MM-1 Run-28
HL in feet of H2O
Turbidity (TU)
Ave. Raw TU= 0.78
HL
Turbidity
0.3
0.2
0.1
1
2
3
4
5
6
7
8
9
2
4
6
8
10
12
14
16
18
20
22
HOURS

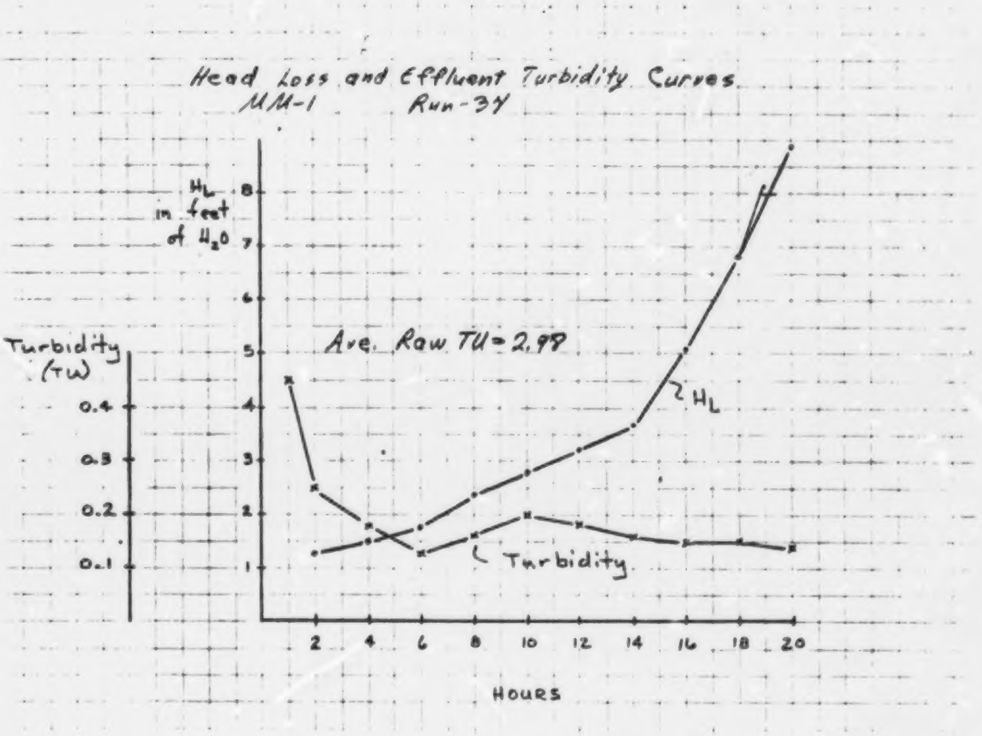

Head Loss and Effluent Turbidity Curves
MM-1 Run-29
H_L in feet of H_2O
1
2
3
4
5
6
7
8
9
Ave. Raw TU= 0.82
H_L
Turbidity
Turbidity (TU)
0.2
0.1
2
4
6
8
10
12
14
16
18
20
22
HOURS

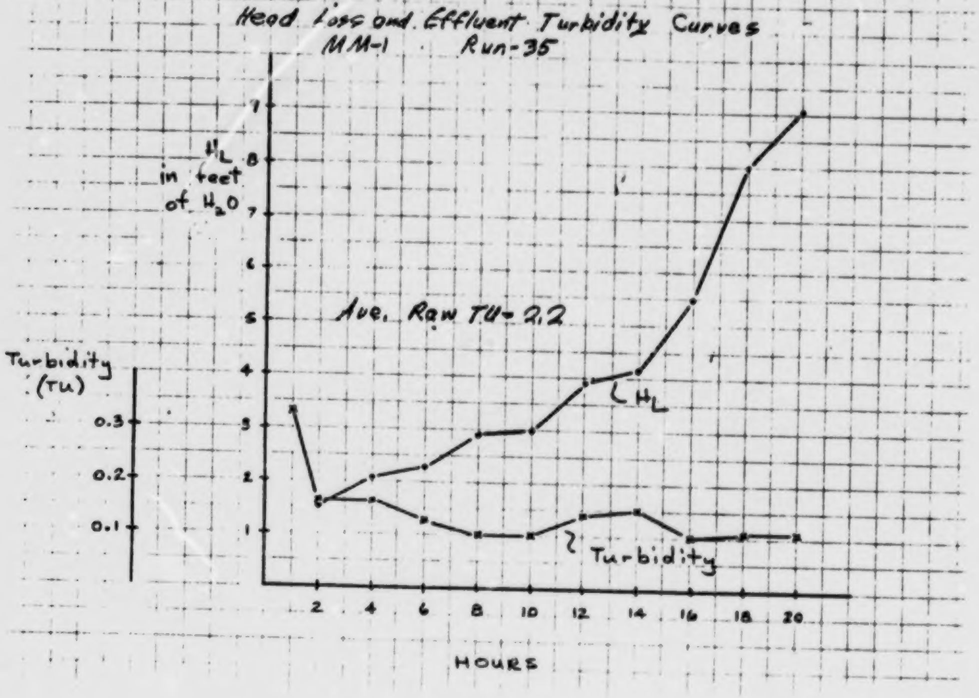

Head Loss and Effluent Turbidity Curves
MM-1 Run- 30
H_L in feet of H_2O
1
2
3
4
5
6
7
8
9
Ave. Raw TU= 0.80
H_L
Turbidity
Turbidity (TU)
0.2
0.1
2
4
6
8
10
12
14
16
18
20
HOURS

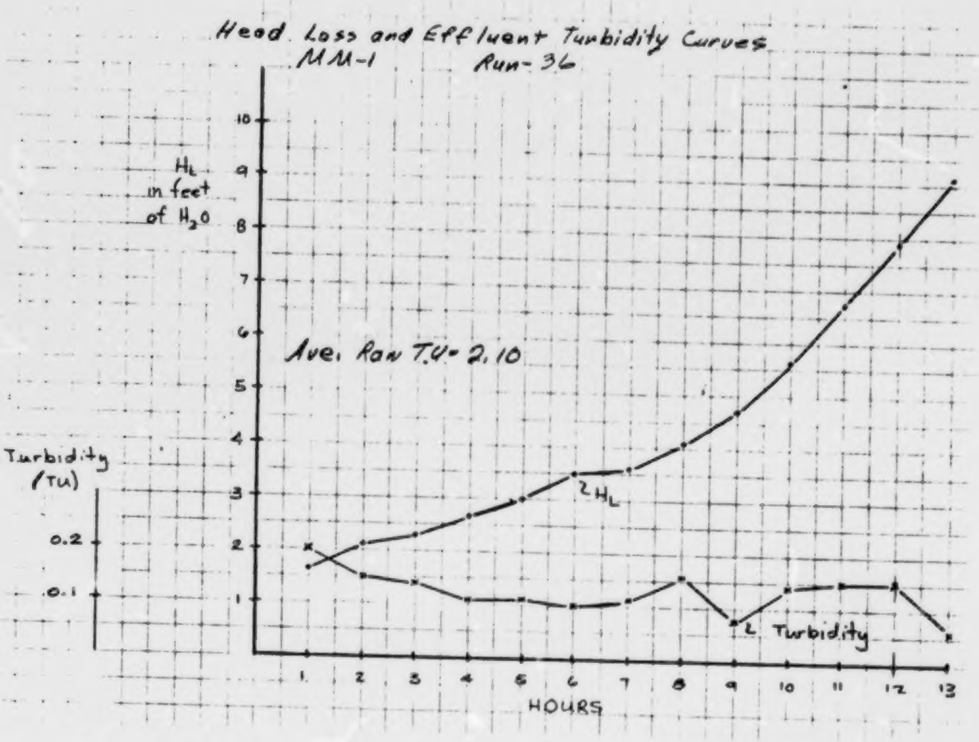

Head Loss and Effluent Turbidity Curves
MM-1 Run-31
H_L in feet of H_2O
1
2
3
4
5
6
7
8
9
Ave. Raw TU = 0.53
Turbidity (TU)
0.2
0.1
H_L
Turbidity
2
4
6
8
10
12
14
16
18
20
22
Hours

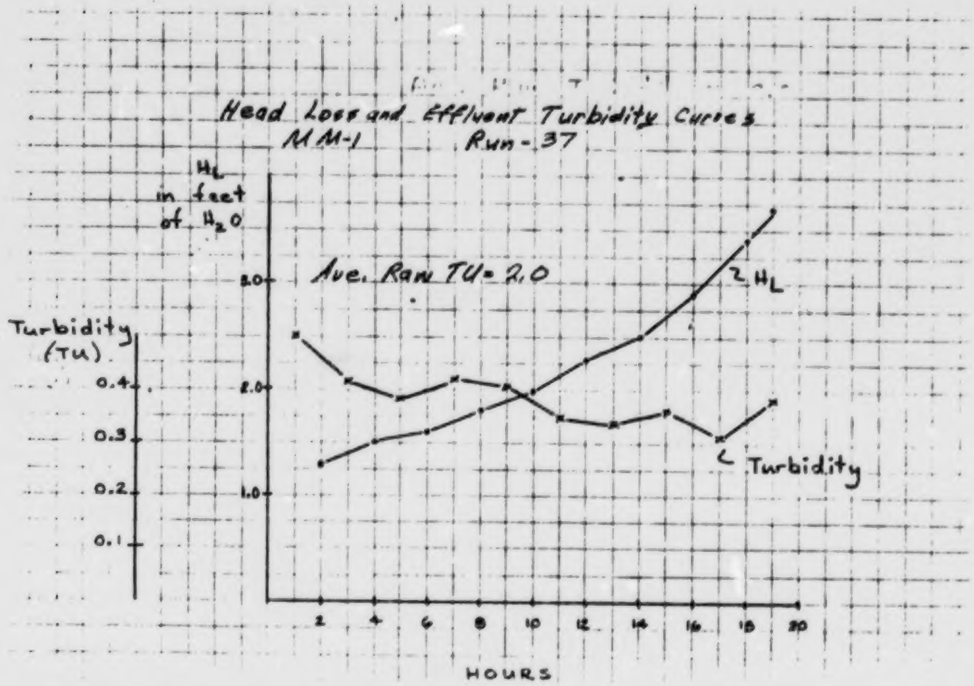

Head Loss and Effluent Turbidity Curves
MM-1 Run-32
H_L in feet of H_2O
1
2
3
4
5
6
7
8
9
10
Ave. Raw TU = 3.60
Turbidity (TU)
0.3
0.2
0.1
H_L
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
Hours

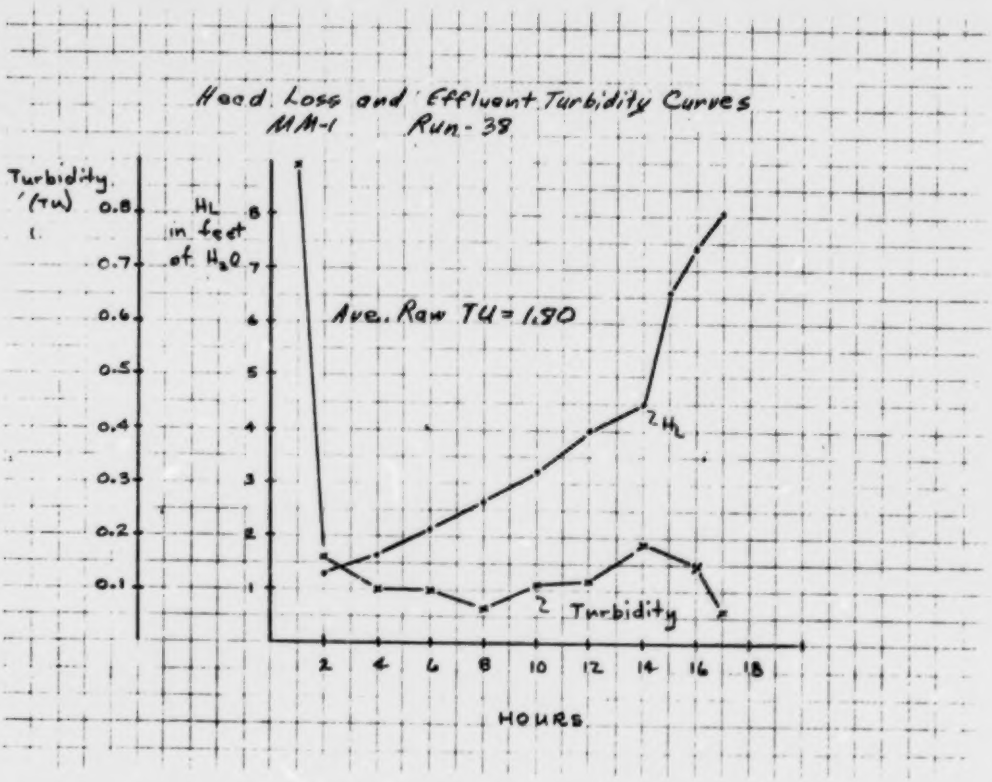

Head Loss and Effluent Turbidity Curves
MM-1 Run-33
Turbidity (TU
1.5
1.0
0.5
HL in feet of H2O
.7
.6
.5
.4
.3
.2
.1
Ave. Raw TU = 3.90
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
HOURS

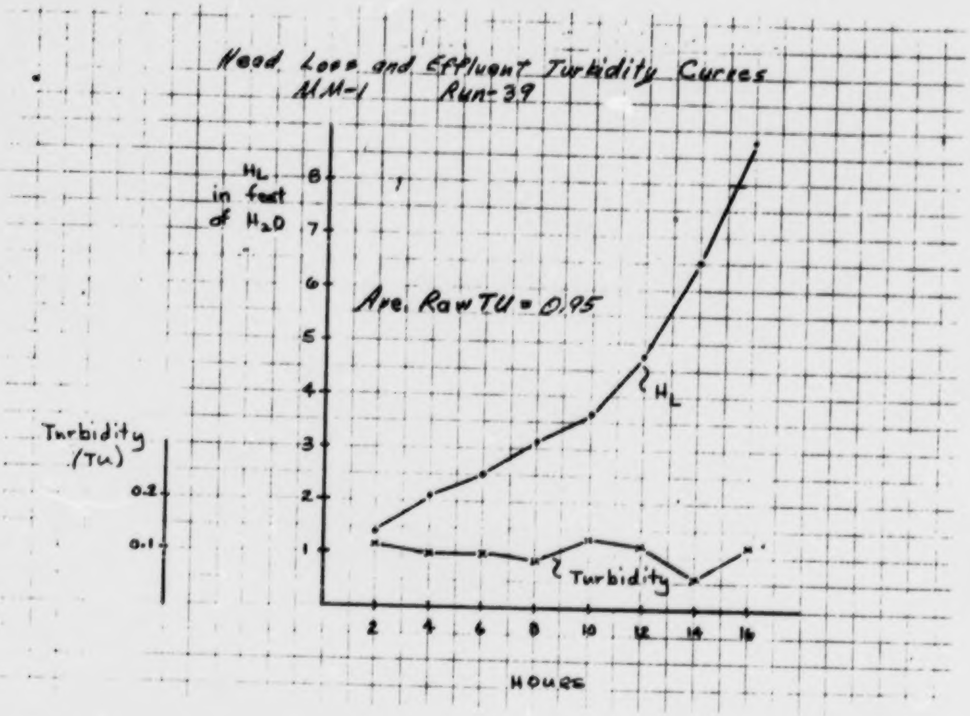

Head Loss and Effluent Turbidity Curves
MM-1 Run-34
HL in feet of H2O
8
7
6
5
4
3
2
1
Turbidity (TU)
0.4
0.3
0.2
0.1
Ave. Raw TU = 2.98
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
HOURS


Head Loss and Effluent Turbidity Curves
MM-1 Run-35
H_L in feet of H_2O
1
2
3
4
5
6
7
8
9
Turbidity (TU)
0.1
0.2
0.3
Ave. Raw TU- 2.2
H_L
Turbidity
2
4
6
8
10
12
14
16
18
20
HOURS

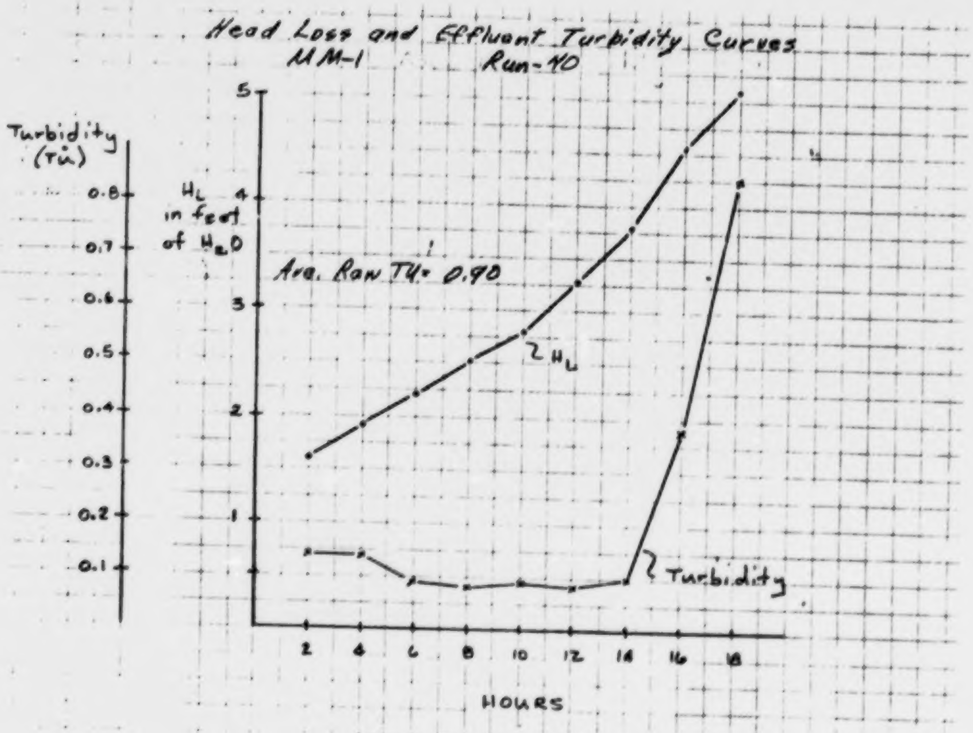

Head Loss and Effluent Turbidity Curves
MM-1 Run-36
H_L in feet of H_2O
1
2
3
4
5
6
7
8
9
10
Turbidity (TU)
0.1
0.2
Ave. Raw T.U- 2.10
H_L
Turbidity
1
2
3
4
5
6
7
8
9
10
11
12
13
HOURS


Head Loss and Effluent Turbidity Curves
MM-1 Run-37

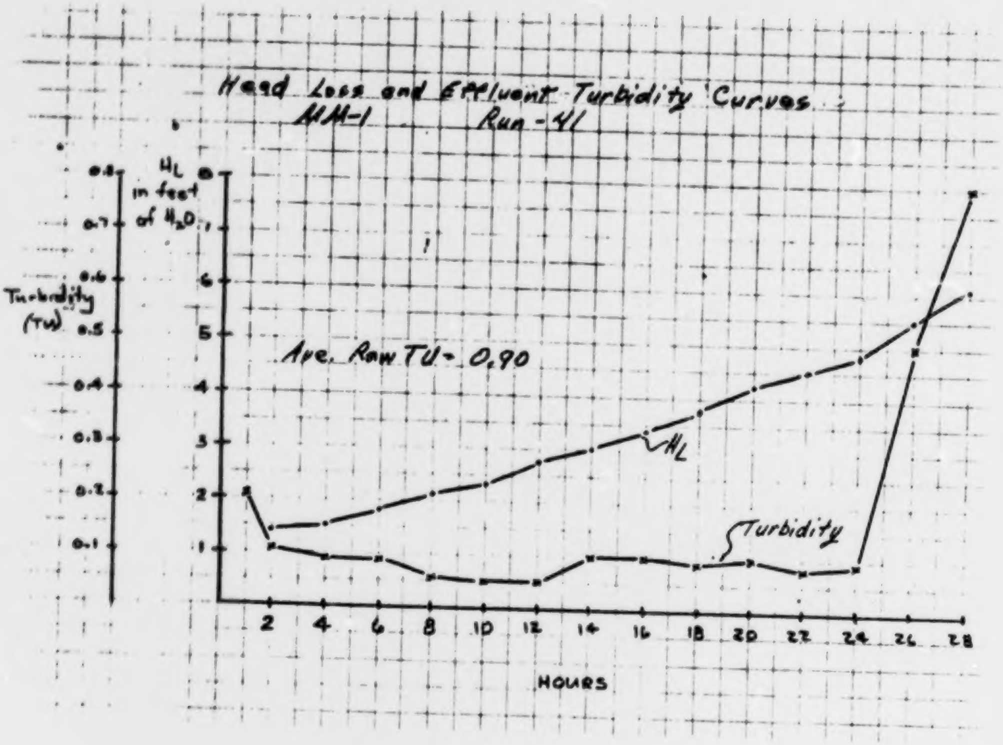

Head Loss and Effluent Turbidity Curves
MM-1 Run-38

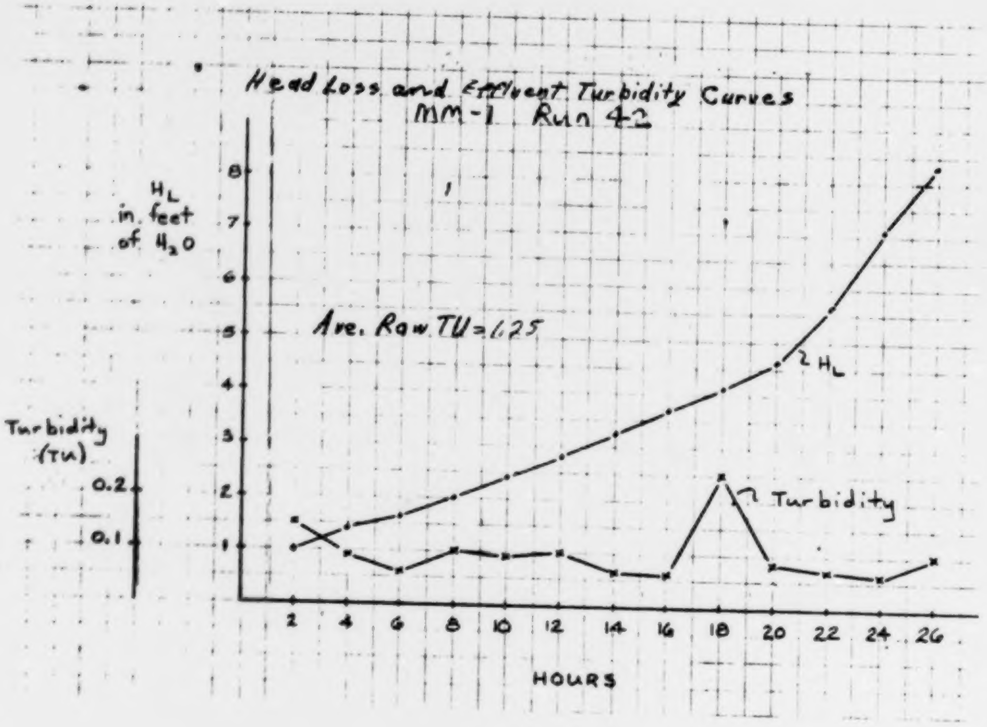


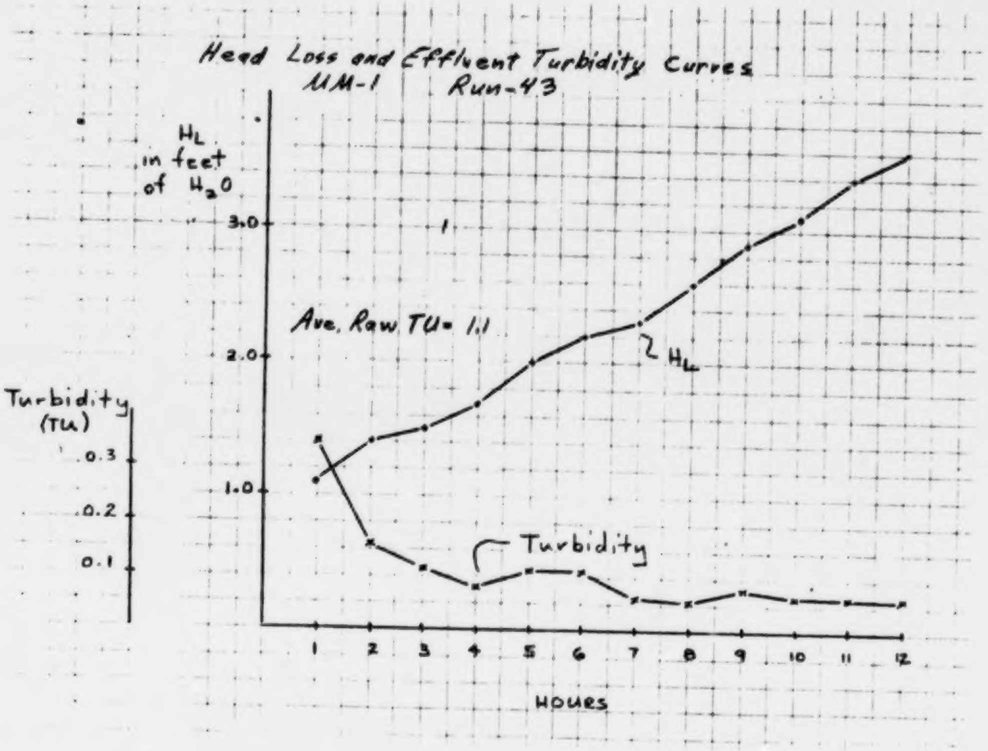
Head Loss and Effluent Turbidity Curves
MM-1 Run-39

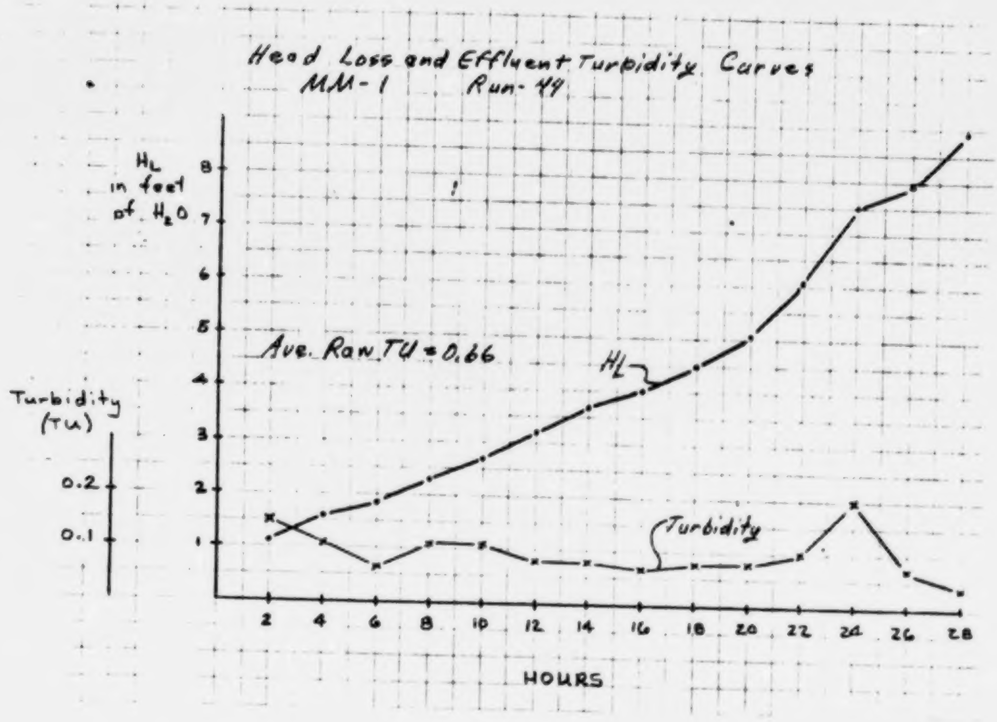


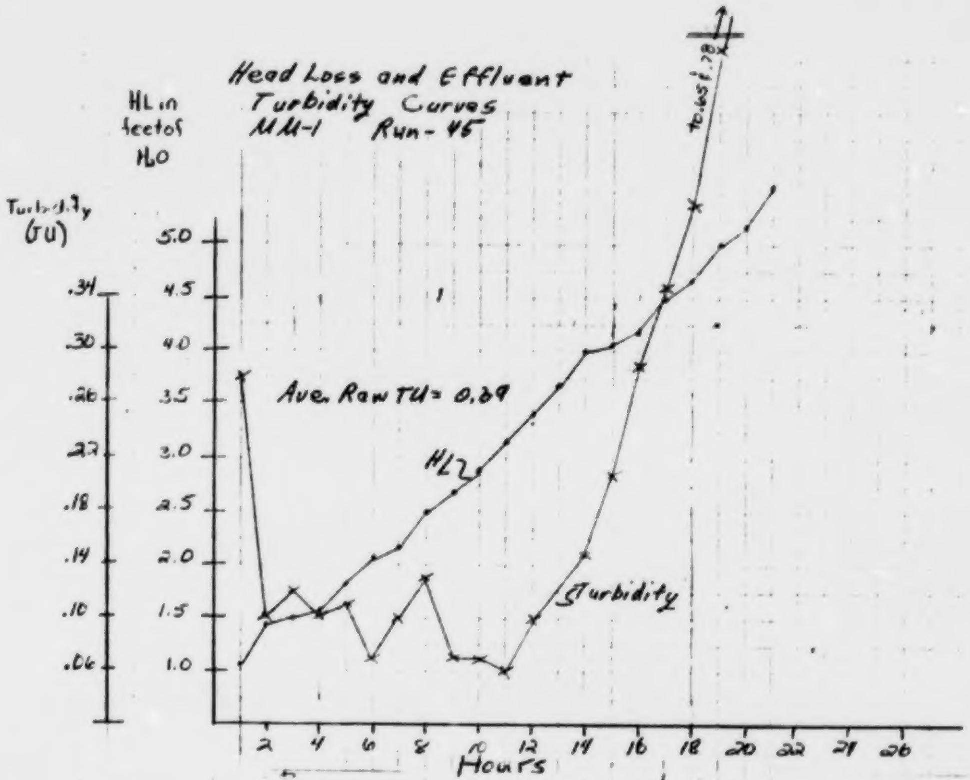
Head Loss and Effluent Turbidity Curves
MM-1 Run-40

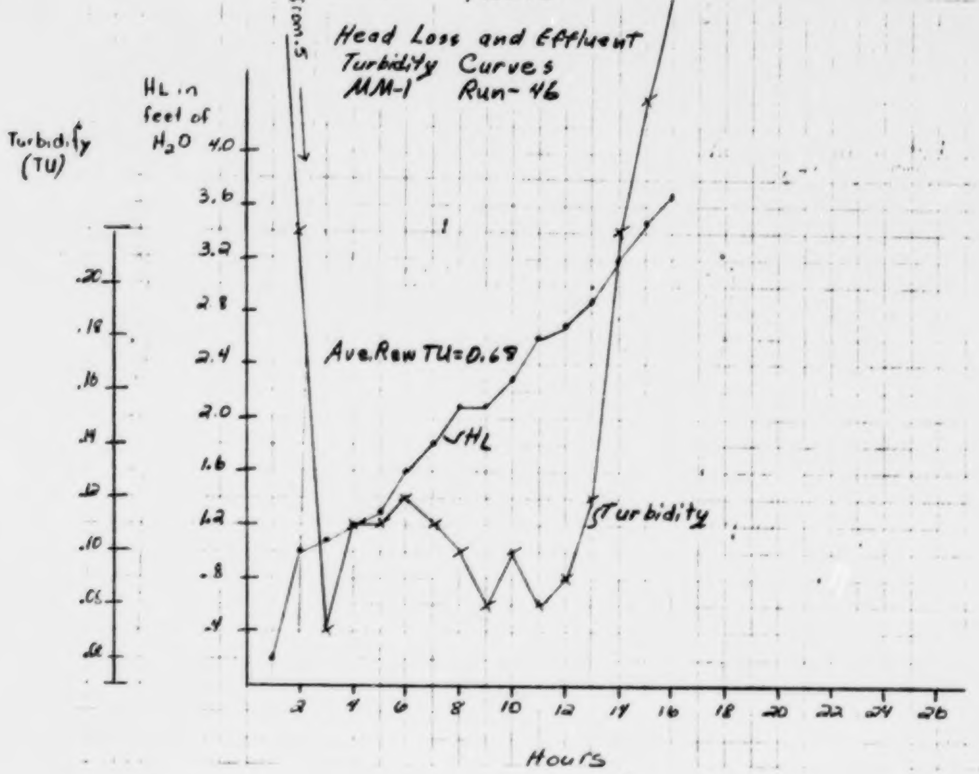

Head Loss and Effluent Turbidity Curves
MM-1 Run-41
Turbidity (TU)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
H_L in feet of H_2O
8
7
6
5
4
3
2
1
Ave. Raw TU= 0.90
H_L
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
28
HOURS


Head Loss and Effluent Turbidity Curves
MM-1 Run 42
H_L in feet of H_2O
8
7
6
5
4
3
2
1
Turbidity (TU)
0.2
0.1
Ave. Raw TU=1.25
H_L
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
HOURS

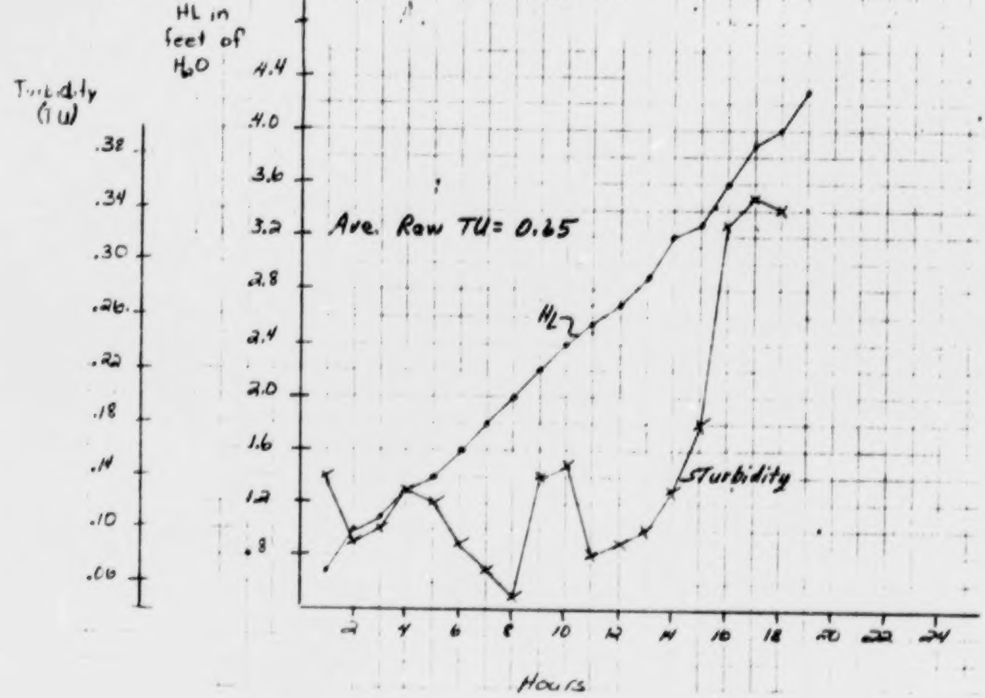

Head Loss and Effluent Turbidity Curves
MM-1 Run-43
HL in feet of H2O
3.0
2.0
1.0
Ave. Raw TU= 1.1
HL
Turbidity
Turbidity (TU)
0.3
0.2
0.1
1
2
3
4
5
6
7
8
9
10
11
12
HOURS


Head Loss and Effluent Turbidity Curves
MM-1 Run-49
HL in feet of H2O
8
7
6
5
4
3
2
1
Ave. Raw TU = 0.66
HL
Turbidity
Turbidity (TU)
0.2
0.1
2
4
6
8
10
12
14
16
18
20
22
24
26
28
HOURS

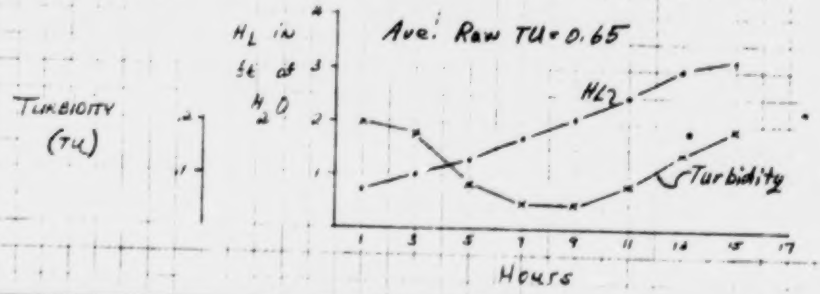

Head Loss and Effluent Turbidity Curves
MM-1 Run-45
HL in feet of H2O
Turbidity (TU)
.34
.30
.26
.22
.18
.14
.10
.06
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
Ave. Raw TU = 0.39
HL
Turbidity
to .665 @ .78
2
4
6
8
10
12
14
16
18
20
22
24
26
Hours

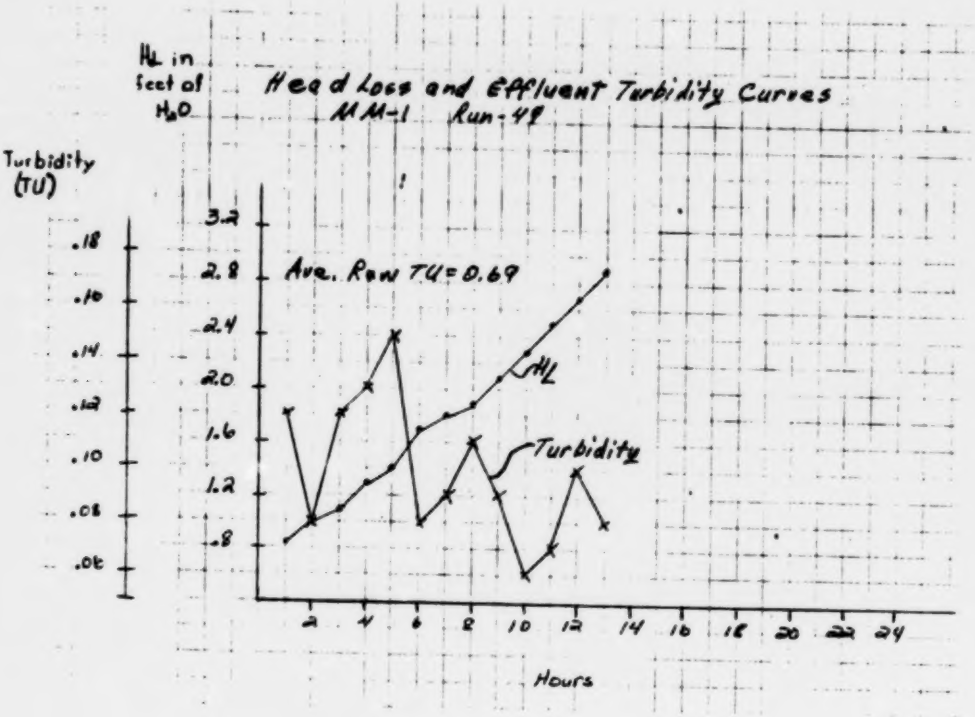

Head Loss and Effluent Turbidity Curves
MM-1 Run-46
HL in feet of H2O
Turbidity (TU)
from .5
4.0
3.6
3.2
2.8
2.4
2.0
1.6
1.2
.8
.4
.20
.18
.16
.14
.12
.10
.08
.06
Ave. Raw TU = 0.68
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
Hours

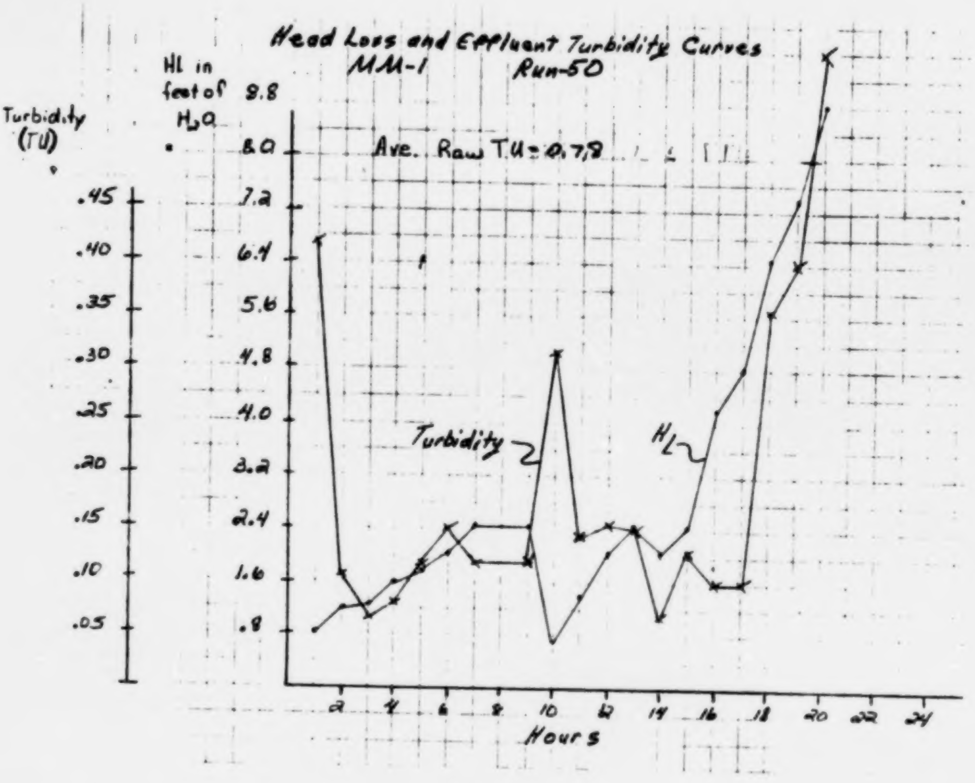
Head Loss and Effluent Turbidity Curves
MM-1 Run-47



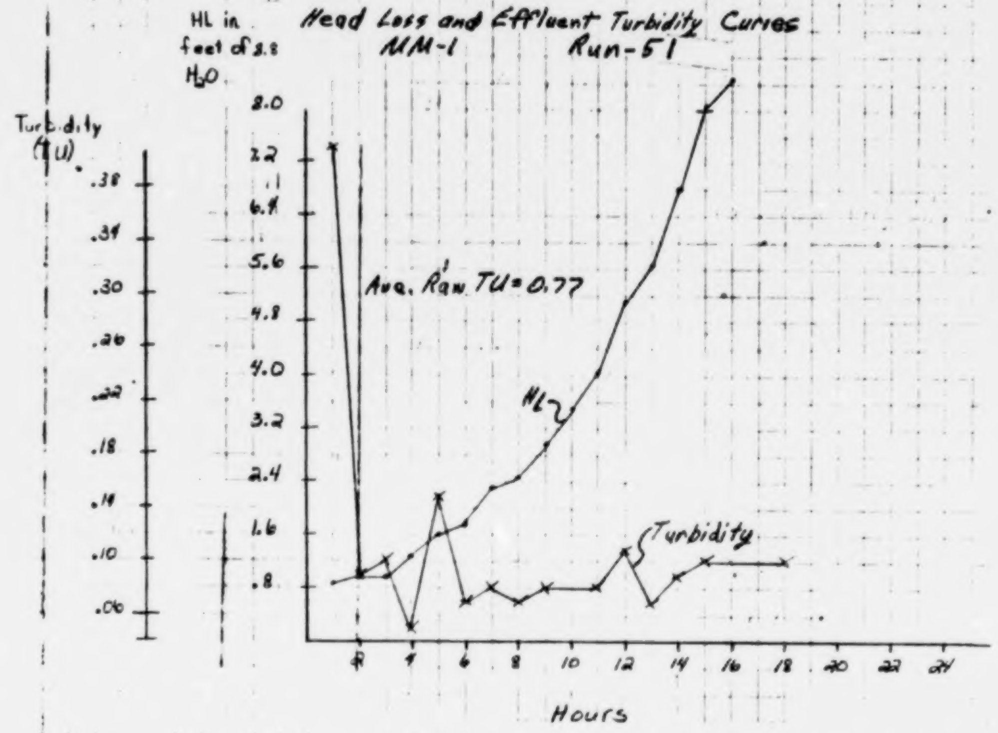
Head Loss and Effluent Turbidity Curves
MM-1 Run-48



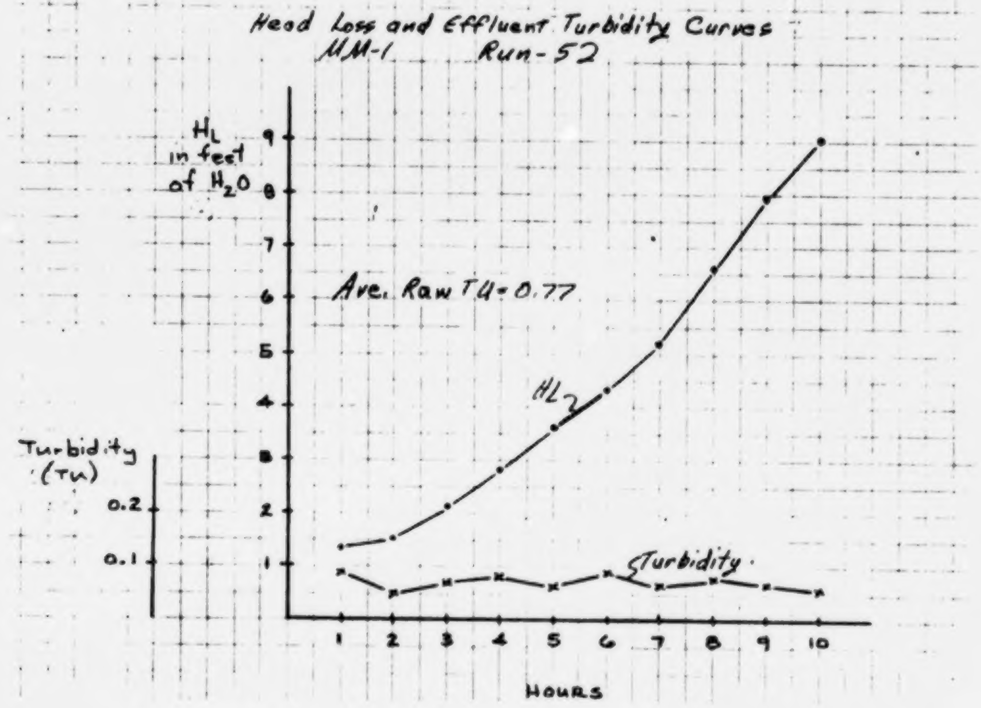

Head Loss and Effluent Turbidity Curves
MM-1 Run-49
HL in feet of H_2O
Turbidity (TU)
Ave. Raw TU = 0.69
HL
Turbidity
.18
.16
.14
.12
.10
.08
.06
3.2
2.8
2.4
2.0
1.6
1.2
.8
2
4
6
8
10
12
14
16
18
20
22
24
Hours

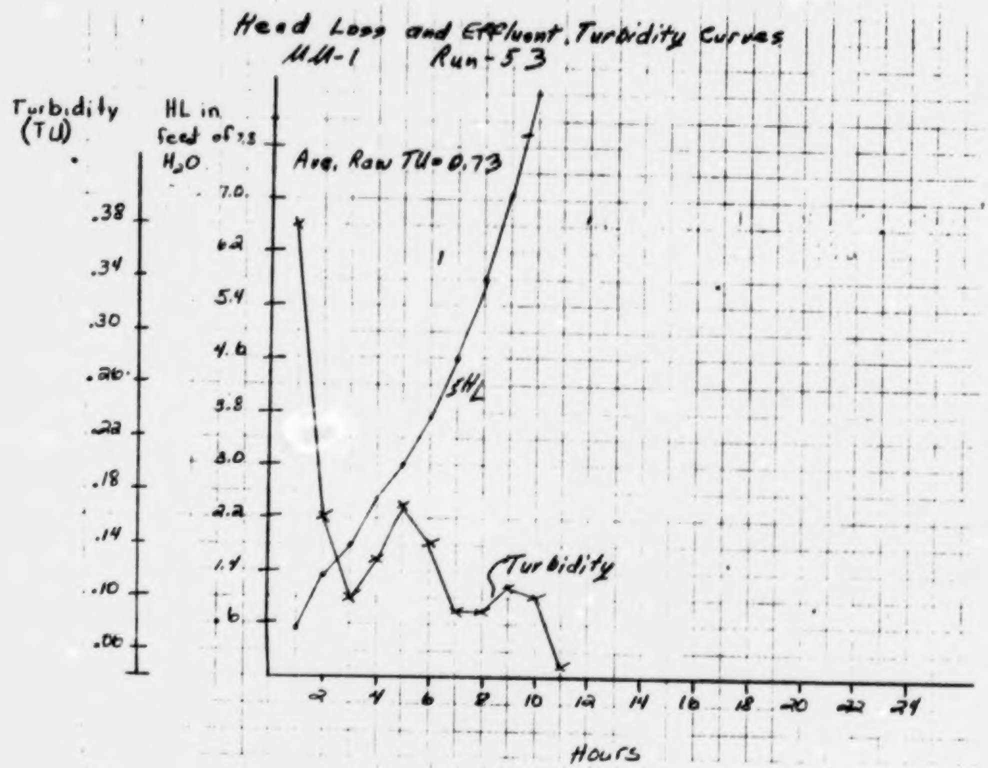

Head Loss and Effluent Turbidity Curves
MM-1 Run-50
HL in feet of H_2O
Turbidity (TU)
Ave. Raw TU = 0.78
Turbidity
HL
.45
.40
.35
.30
.25
.20
.15
.10
.05
8.8
8.0
7.2
6.4
5.6
4.8
4.0
3.2
2.4
1.6
.8
2
4
6
8
10
12
14
16
18
20
22
24
Hours

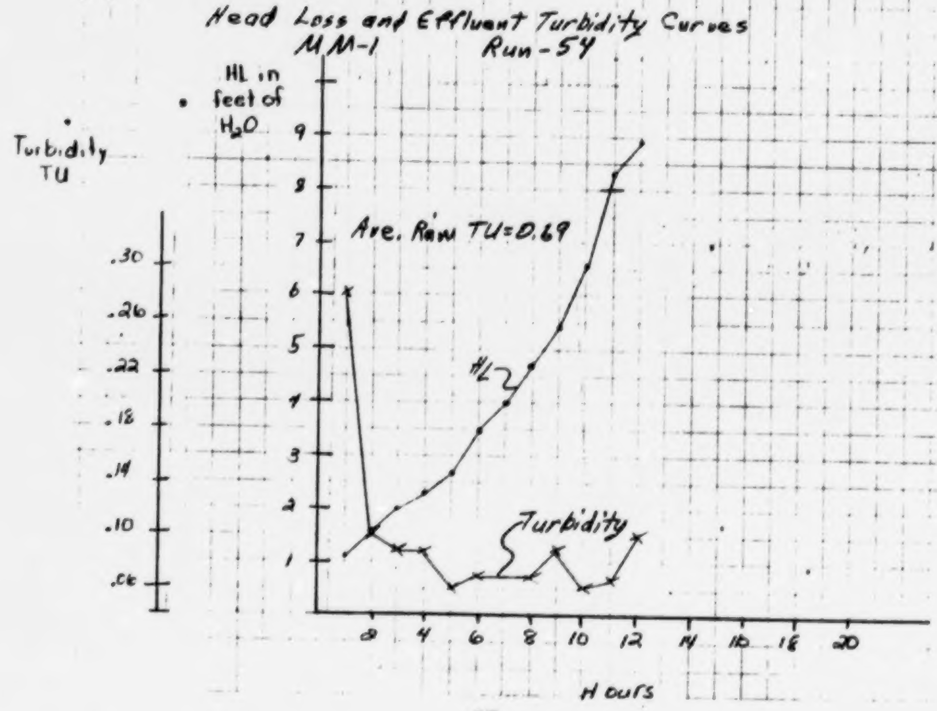
Head Loss and Effluent Turbidity Curves
MM-1 Run-51



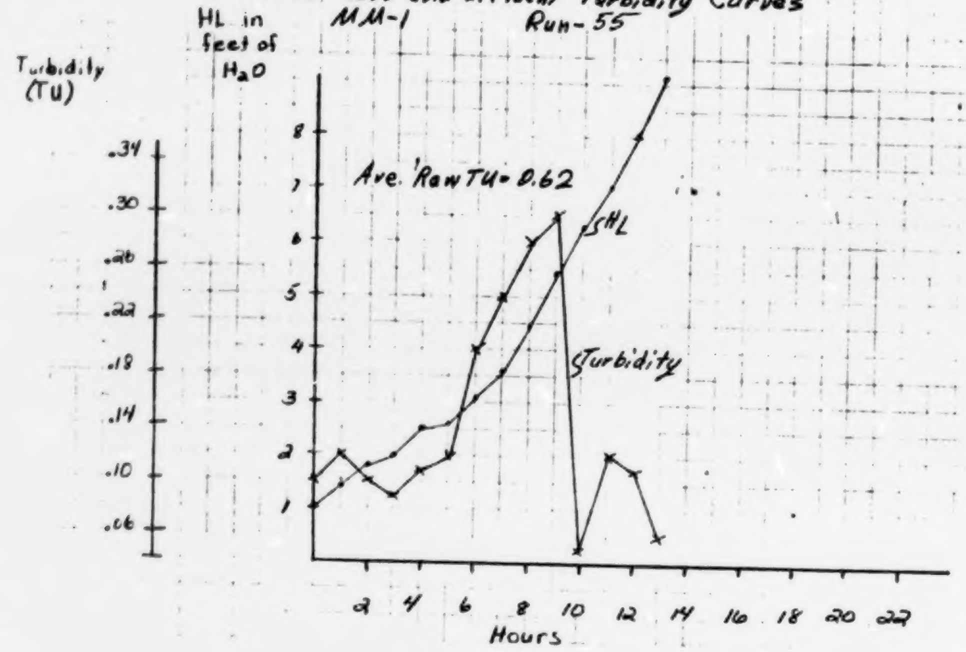
Head Loss and Effluent Turbidity Curves
MM-1 Run-52



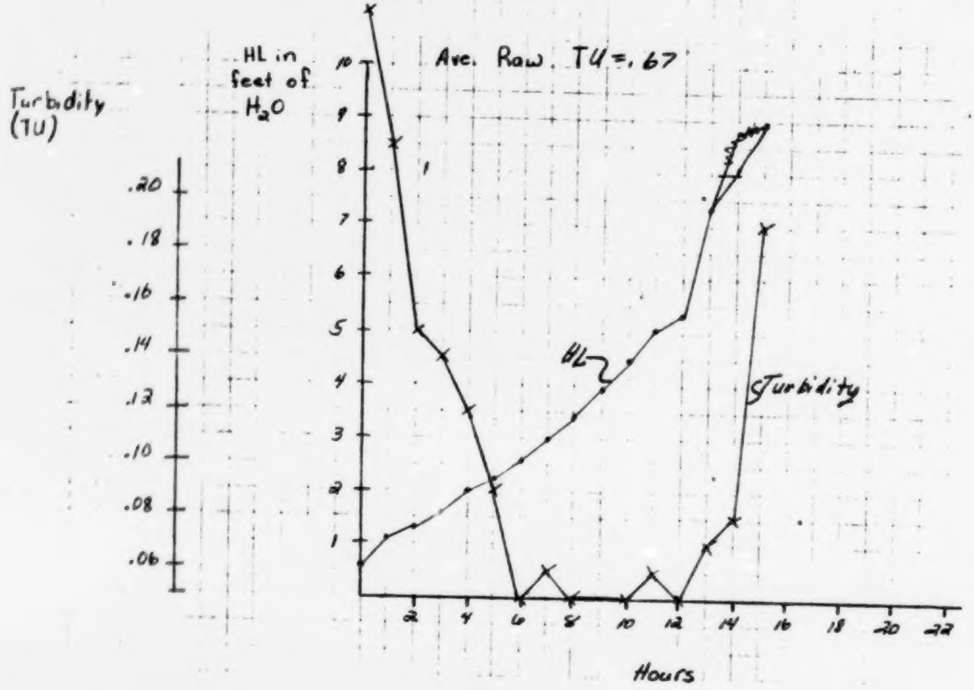

Head Loss and Effluent Turbidity Curves
MM-1 Run-53

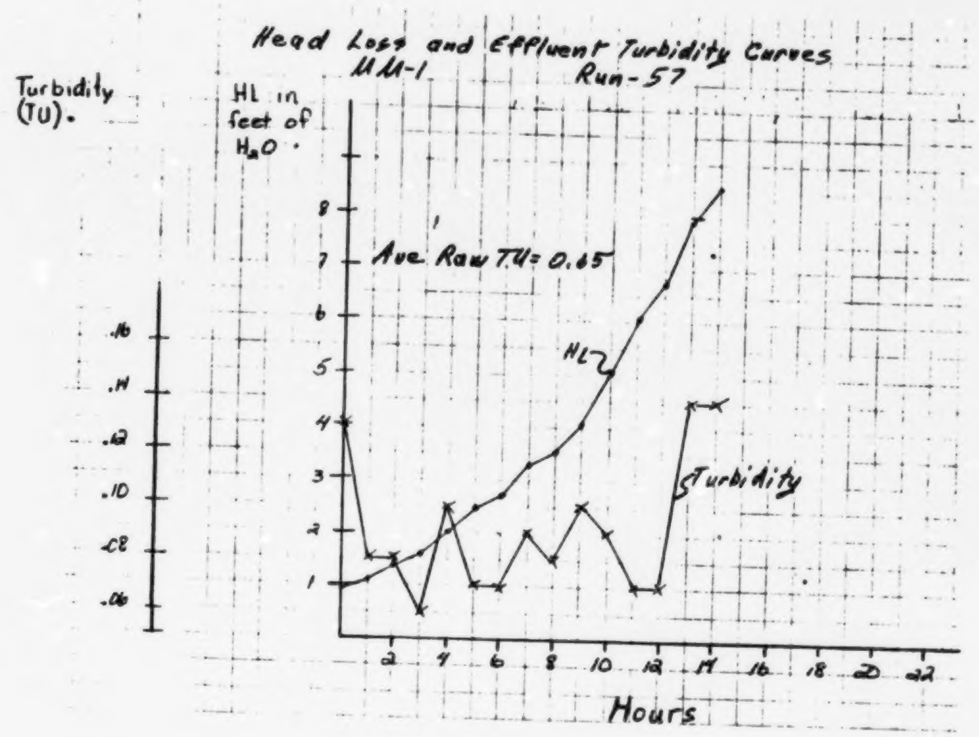

Head Loss and Effluent Turbidity Curves
MM-1 Run-54

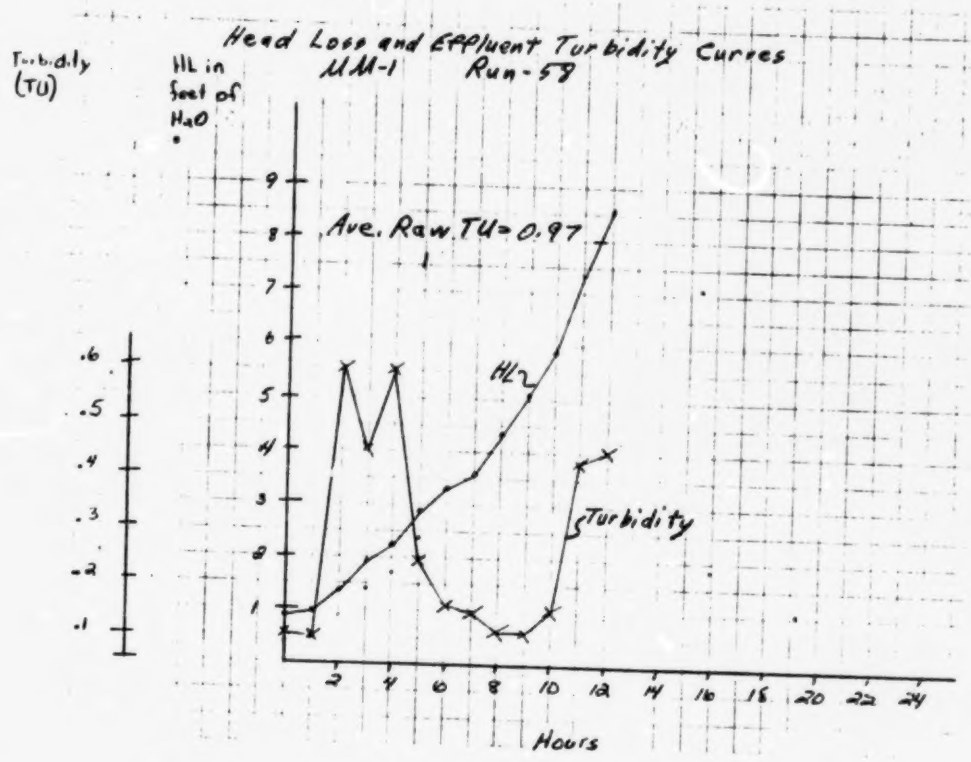
Head Loss and Effluent Turbidity Curves
MM-1 Run-55

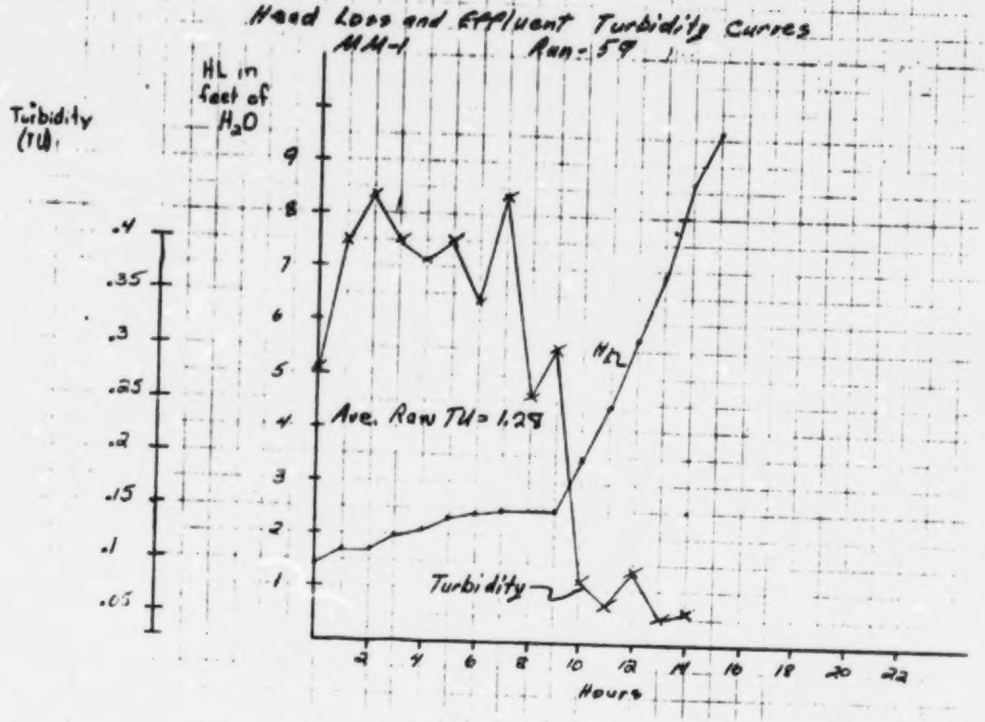


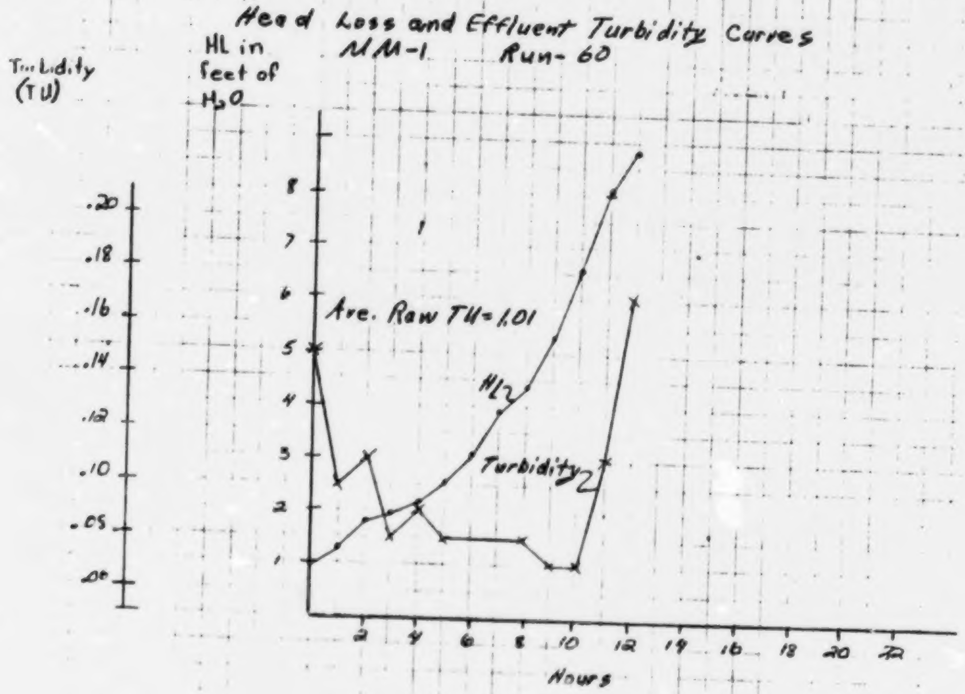
Head Loss and Effluent Turbidity Curves
MM-1 Run-56



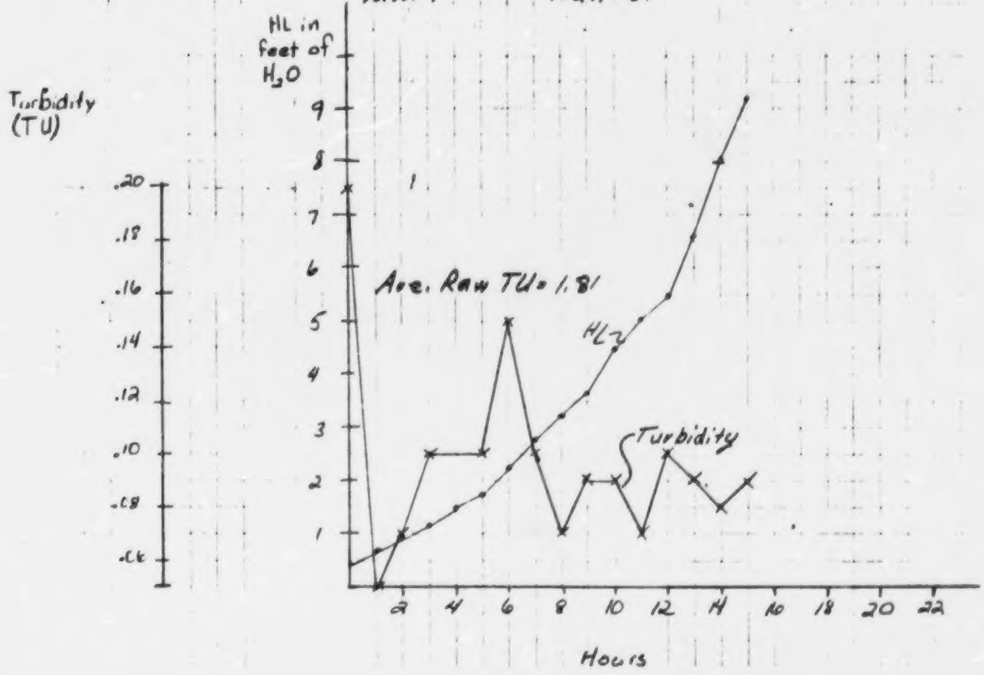

Head Loss and Effluent Turbidity Curves
MM-1 Run-57
Turbidity (TU).
HL in feet of H2O.
Ave. Raw TU= 0.65
HL
Turbidity
.16
.14
.12
.10
.08
.06
8
7
6
5
4
3
2
1
2
4
6
8
10
12
14
16
18
20
22
Hours


Head Loss and Effluent Turbidity Curves
MM-1 Run-58
Turbidity (TU)
HL in feet of H2O
Ave. Raw TU= 0.97
HL
Turbidity
.6
.5
.4
.3
.2
.1
9
8
7
6
5
4
3
2
1
2
4
6
8
10
12
14
16
18
20
22
24
Hours

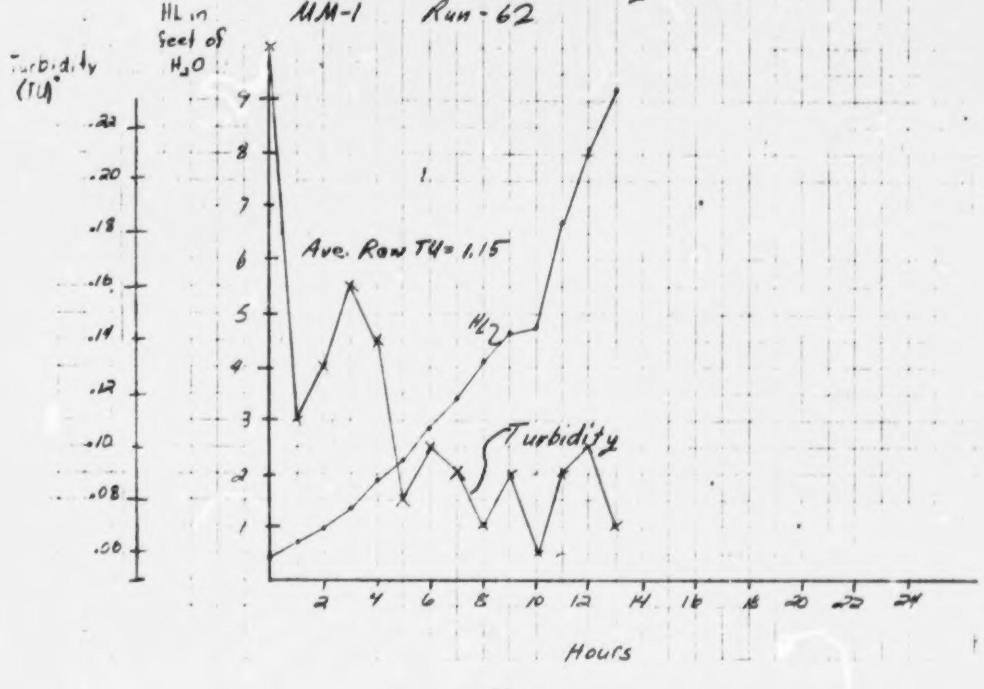

Head Loss and Effluent Turbidity Curves
MM-1 Run-59
Turbidity (TU)
HL in feet of H2O
.4
.35
.3
.25
.2
.15
.1
.05
9
8
7
6
5
4
3
2
1
Ave. Raw TU=1.28
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
Hours


Head Loss and Effluent Turbidity Curves
MM-1 Run-60
Turbidity (TU)
HL in feet of H2O
.20
.18
.16
.14
.12
.10
.05
.0
8
7
6
5
4
3
2
1
Ave. Raw TU=1.01
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
Hours

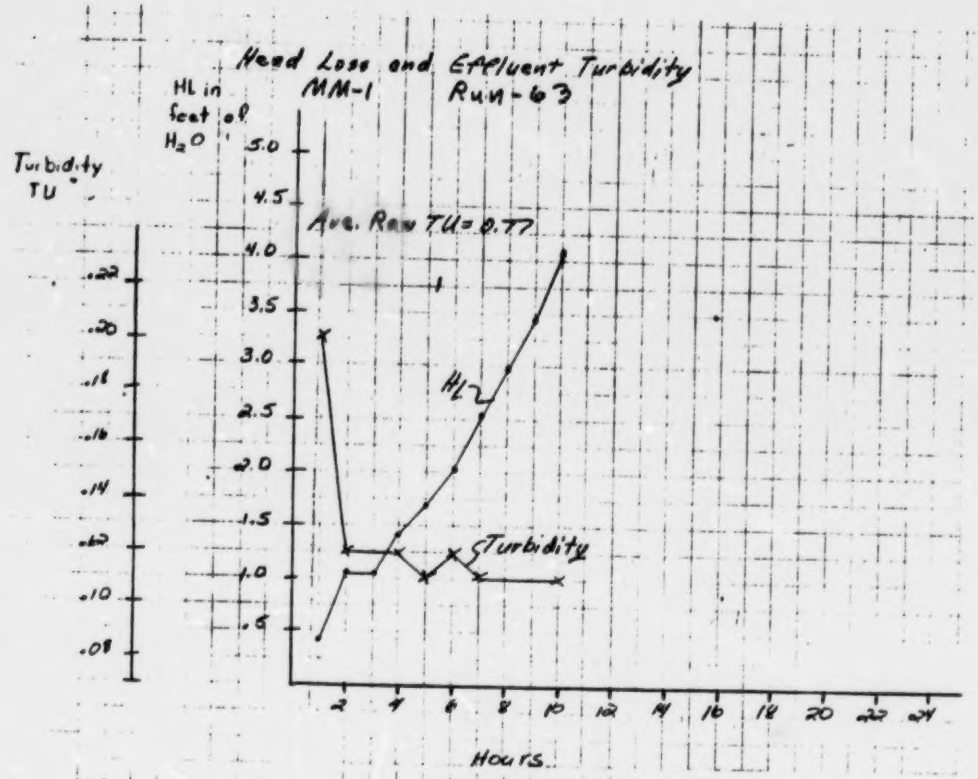
Head Loss and Effluent Turbidity Curves
MM-1 Run-61



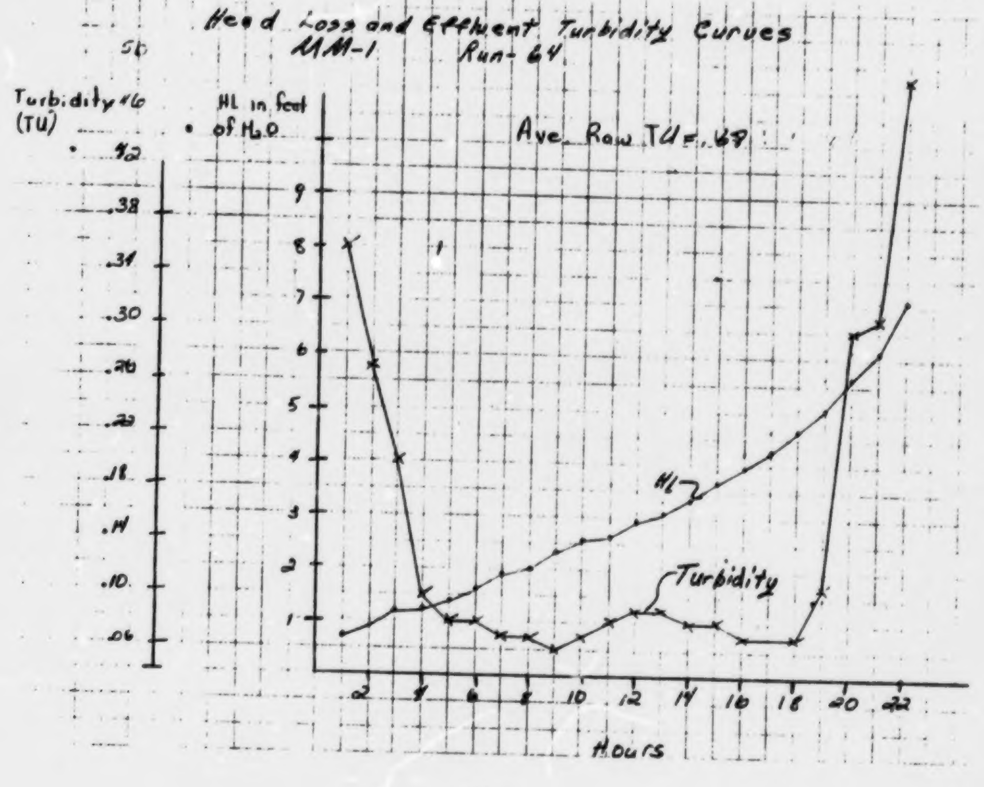
Head Loss and Effluent Turbidity Curves
MM-1 Run-62



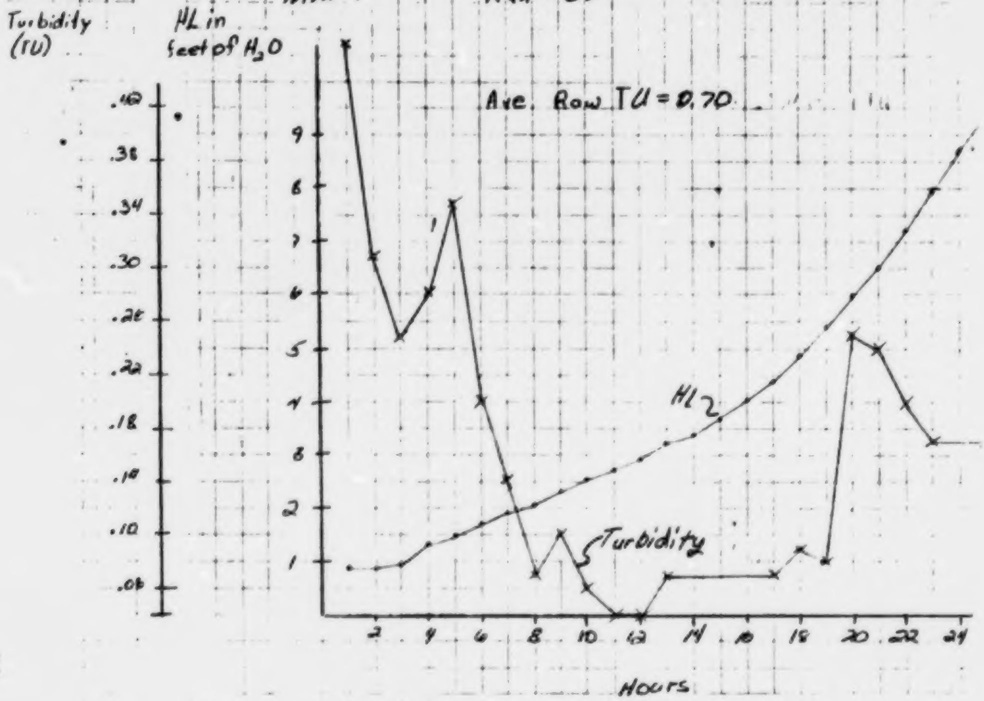
Head Loss and Effluent Turbidity
MM-1 Run-63



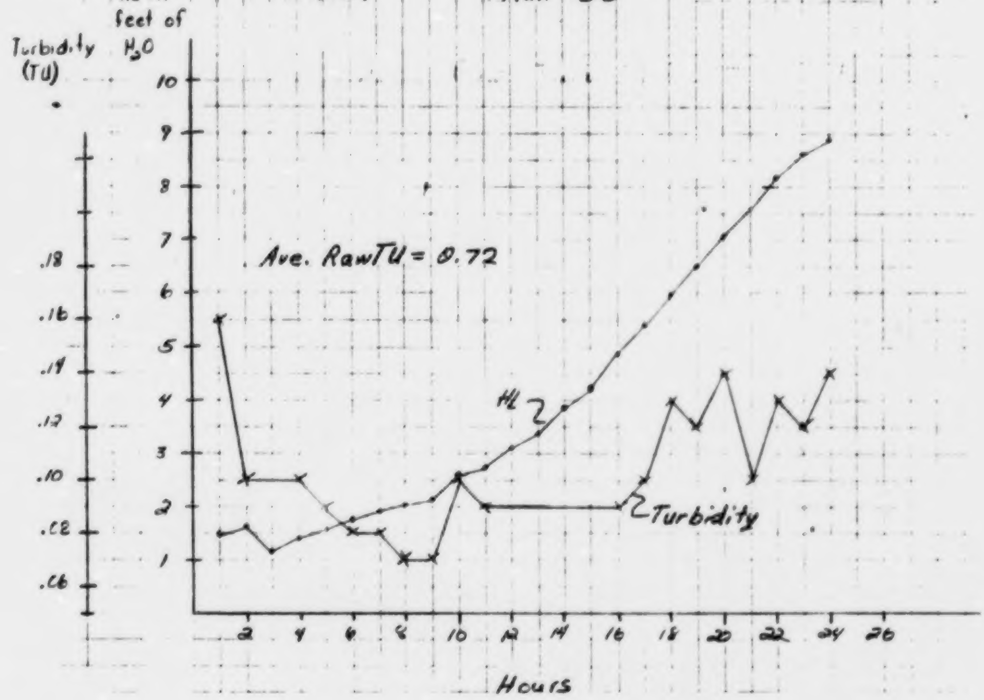
Head Loss and Effluent Turbidity Curves
MM-1 Run-64

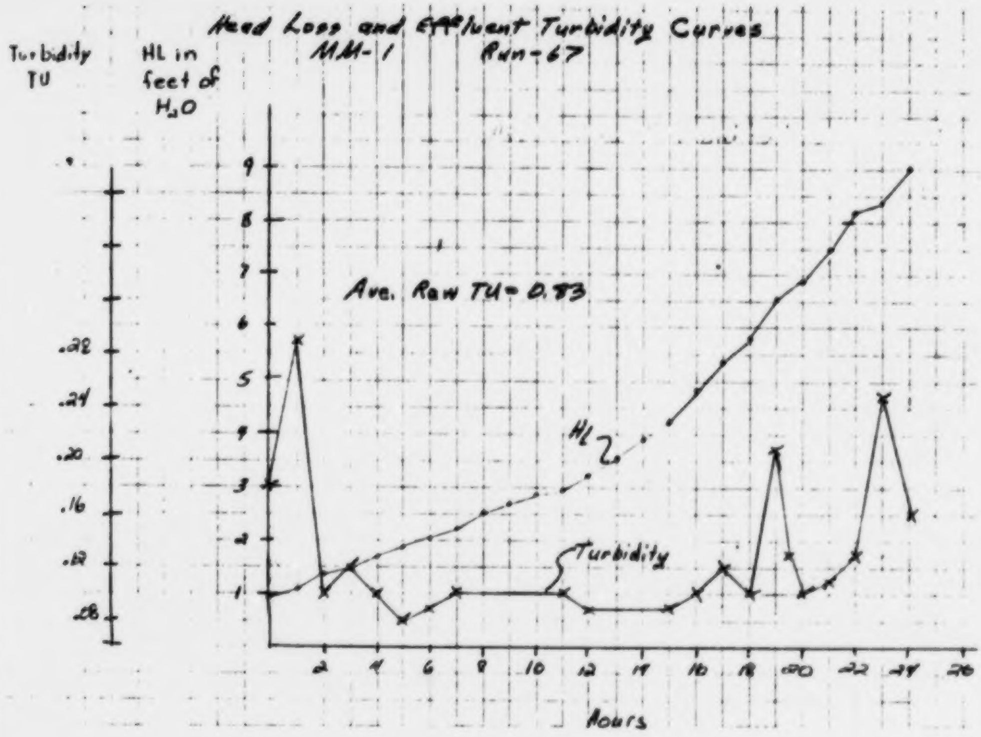


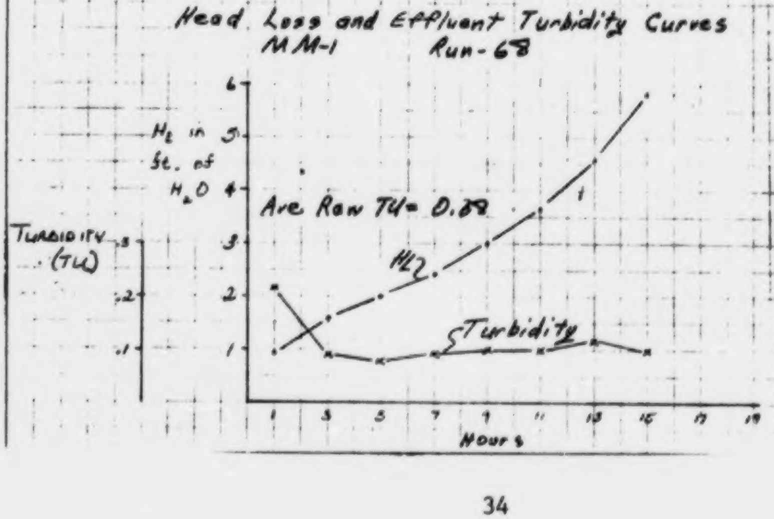
Head Loss and Effluent Turbidity Curves
MM-1 Run - 65

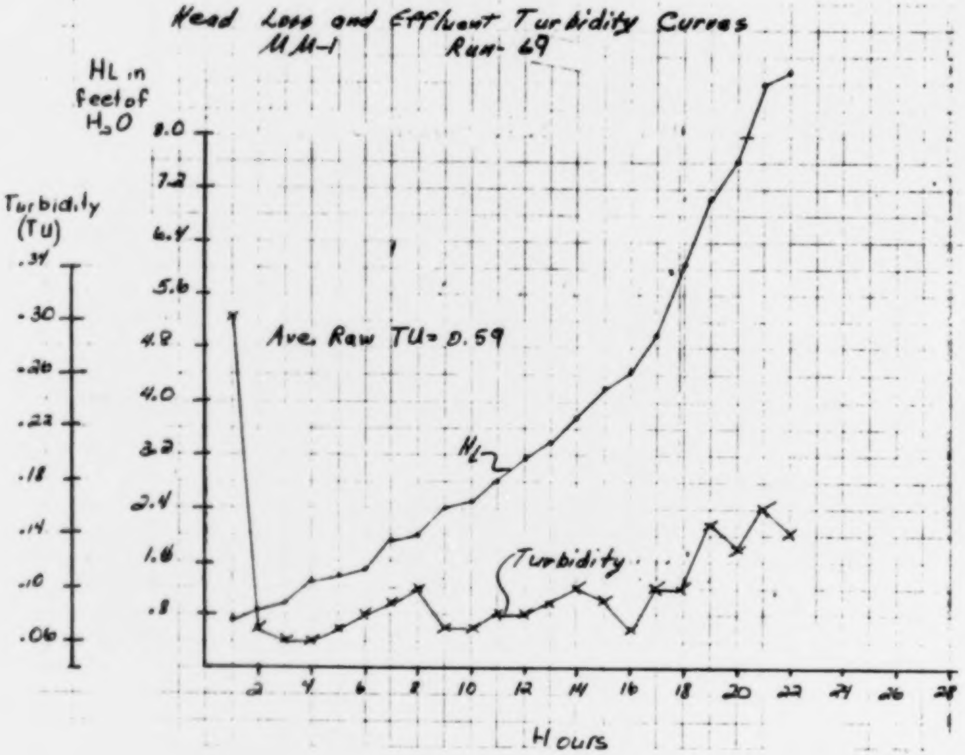


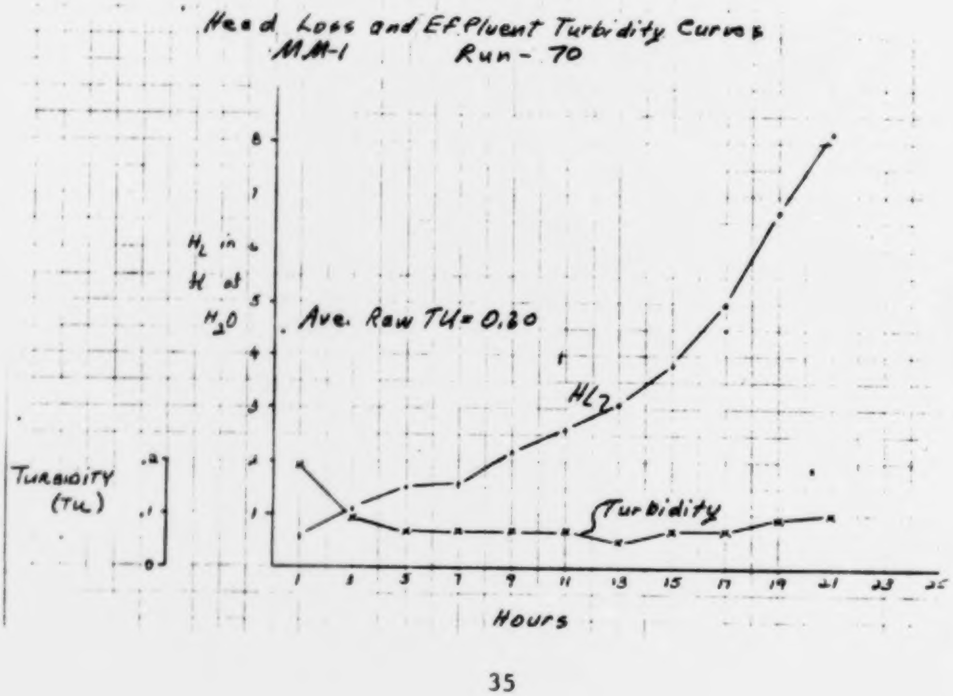
Head Loss and Effluent Turbidity Curves
MM-1 Run- 66



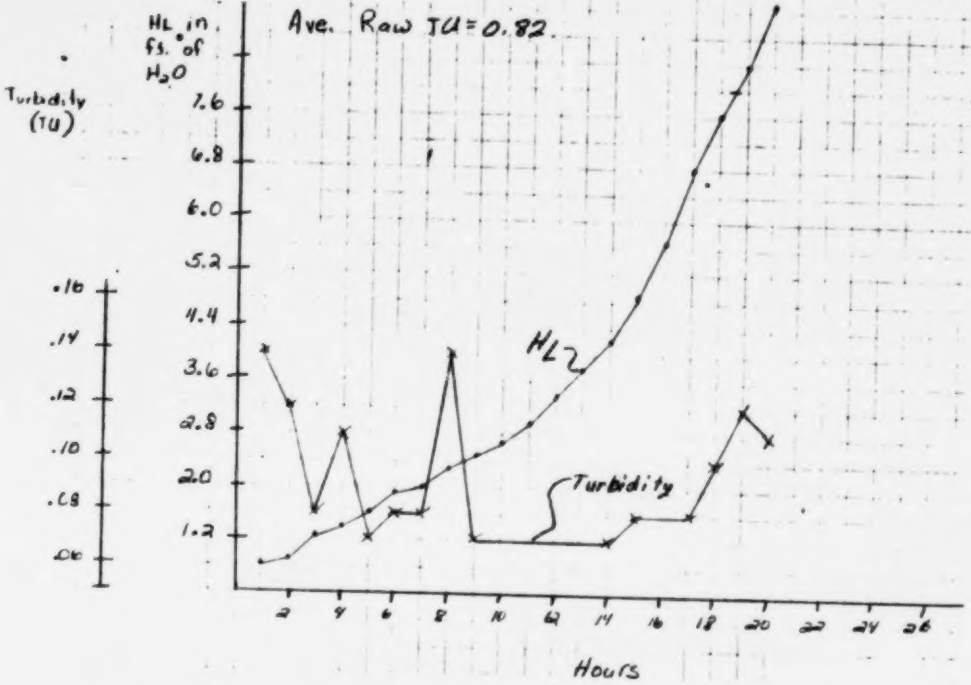

Head Loss and Effluent Turbidity Curves
MM-1 Run-67
Turbidity TU
HL in feet of H_2O
.28
.24
.20
.16
.12
.08
9
8
7
6
5
4
3
2
1
Ave. Raw TU= 0.83
H_L
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
Hours


Head Loss and Effluent Turbidity Curves
MM-1 Run-68
H_L in ft. of H_2O
6
5
4
3
2
1
Turbidity (TU)
.3
.2
.1
Ave Raw TU= 0.88
H_L
Turbidity
1
3
5
7
9
11
13
15
17
19
Hours

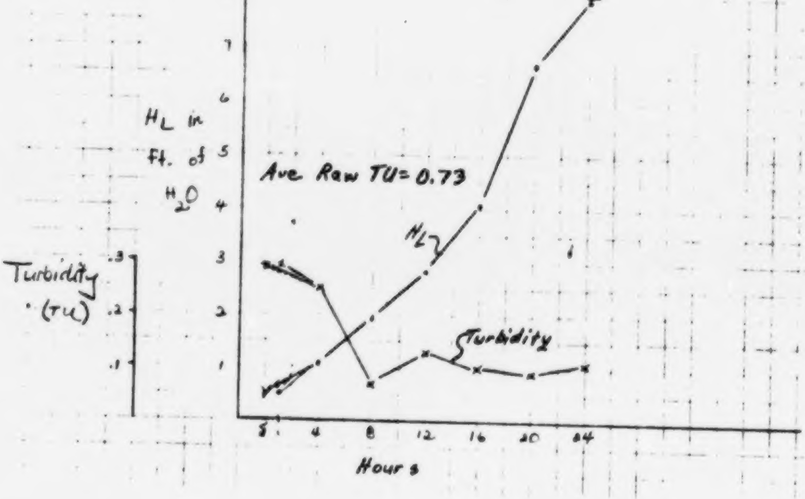

Head Loss and Effluent Turbidity Curves
MM-1 Run- 69
HL in feet of H_2O
8.0
7.2
6.4
5.6
4.8
4.0
3.2
2.4
1.6
.8
Turbidity (TU)
.34
.30
.26
.22
.18
.14
.10
.06
Ave. Raw TU= 0.59
H_L
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
28
Hours

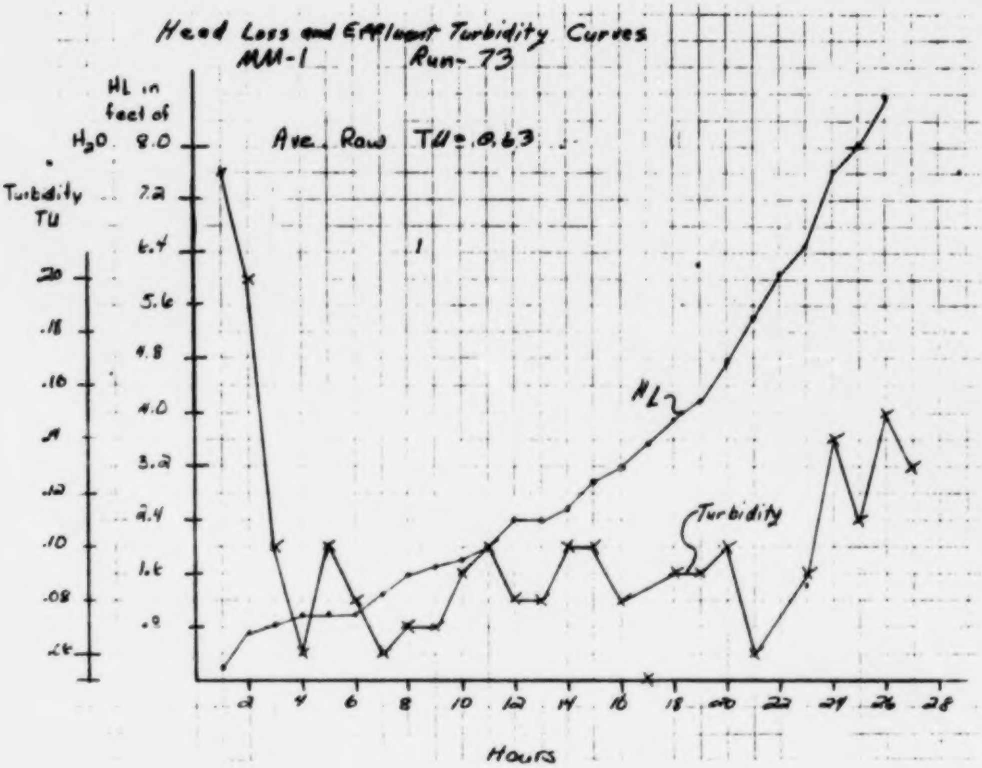

Head Loss and Effluent Turbidity Curves
MM-1 Run- 70
H_L in ft of H_2O
8
7
6
5
4
3
2
1
Ave. Raw TU= 0.20
H_L
Turbidity
TURBIDITY (TU)
.2
.1
0
1
3
5
7
9
11
13
15
17
19
21
23
25
Hours

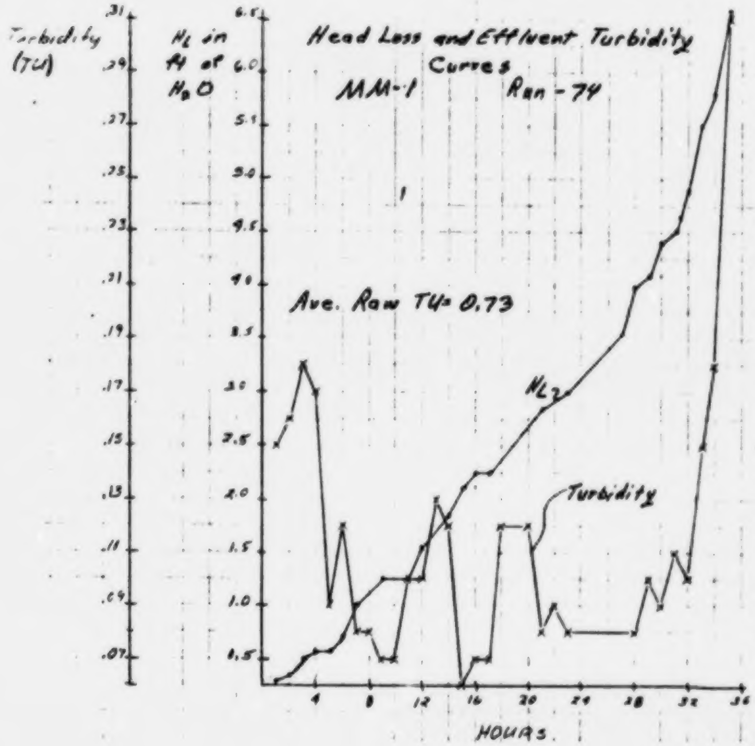
Head Loss and Effluent Turbidity Curves
MM-1 Run-71

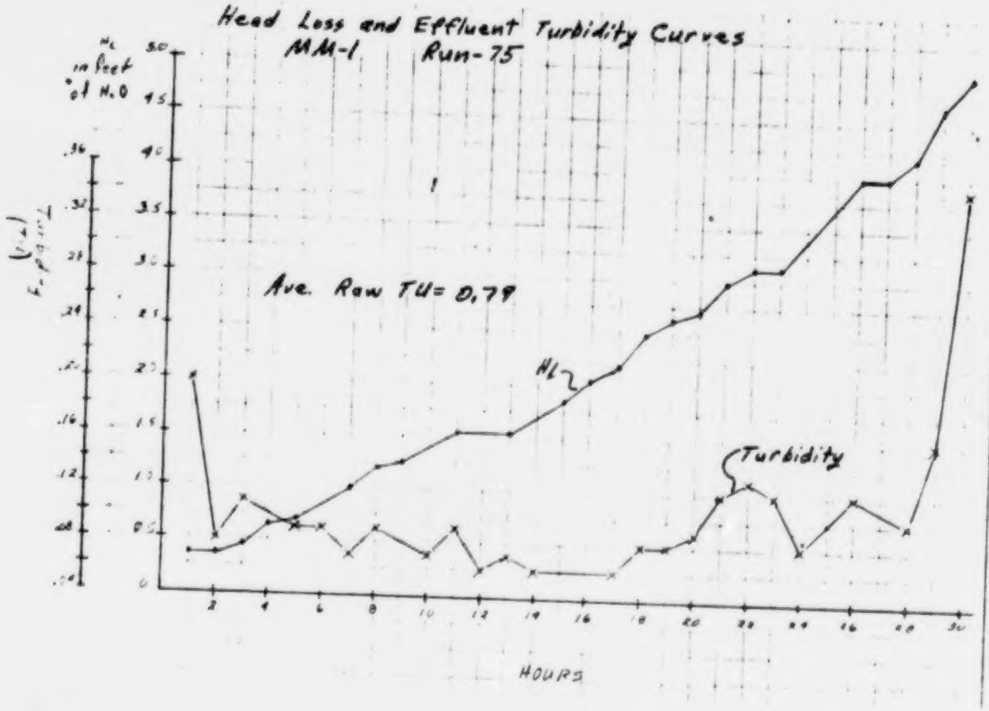


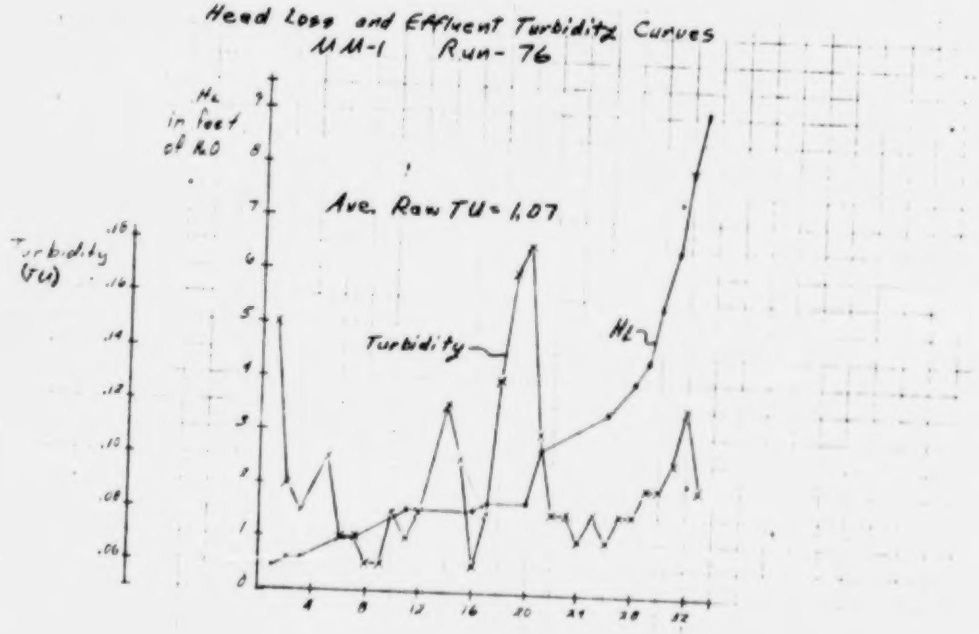
Head Loss and Effluent Turbidity Curves
MM-1 Run-72



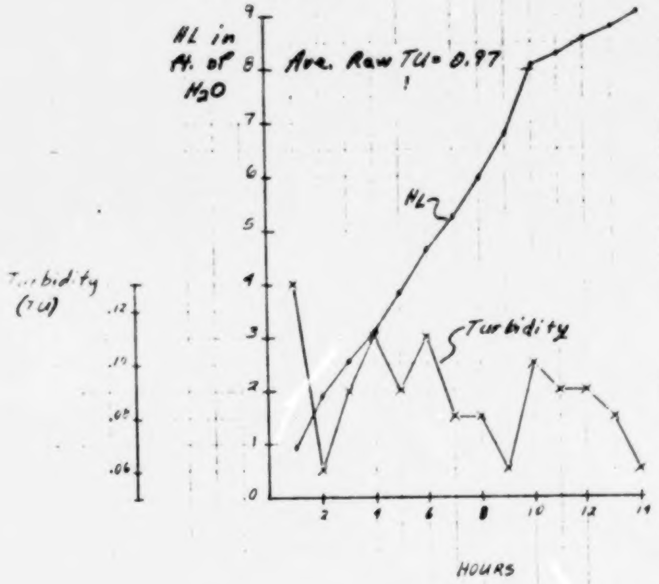

Head Loss and Effluent Turbidity Curves
MM-1 Run-73
HL in feet of H2O
Turbidity TU
Ave. Raw TU= 0.63
8.0
7.2
6.4
5.6
4.8
4.0
3.2
2.4
1.6
.8
.20
.18
.16
.14
.12
.10
.08
.06
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
28
Hours


Head Loss and Effluent Turbidity Curves
MM-1 Run-74
Turbidity (TU)
HL in ft of H2O
Ave. Raw TU= 0.73
.31
.29
.27
.25
.23
.21
.19
.17
.15
.13
.11
.09
.07
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
HL
Turbidity
4
8
12
16
20
24
28
32
36
HOURS.

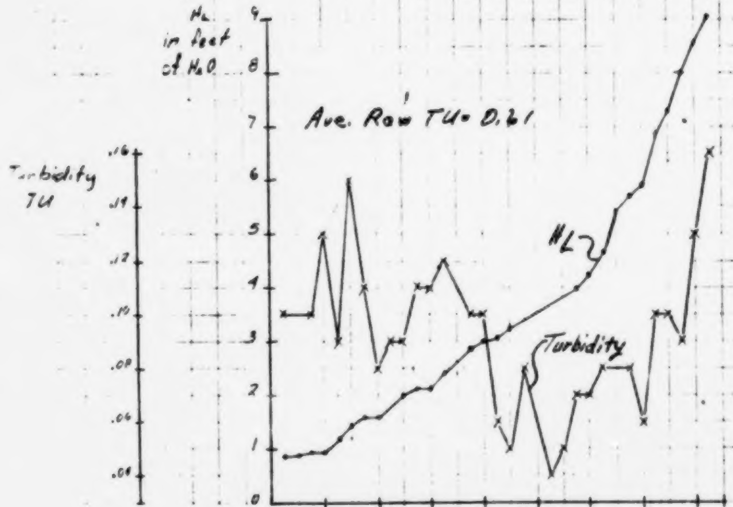

Head Loss and Effluent Turbidity Curves
MM-1 Run-75


Head Loss and Effluent Turbidity Curves
MM-1 Run-76

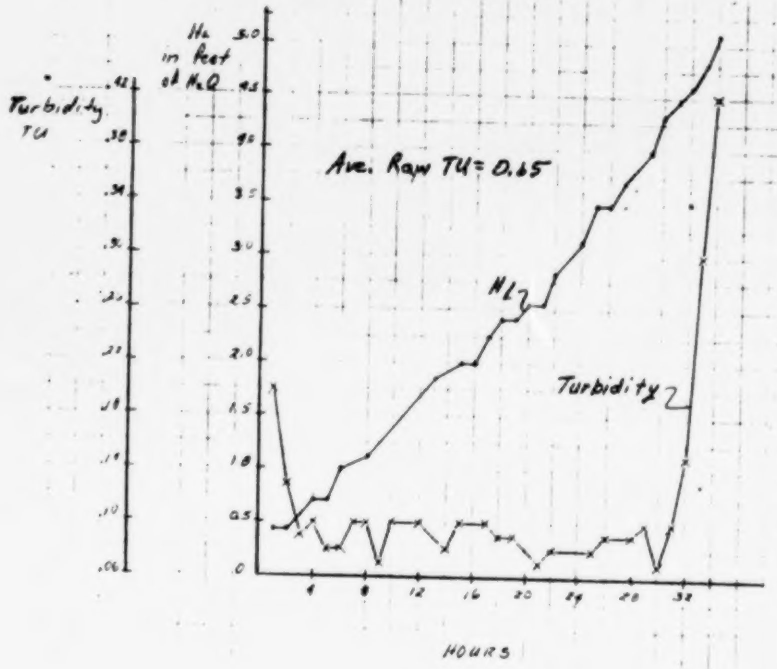
Head Loss and Effluent Turbidity Curves
MM-1 Run-77



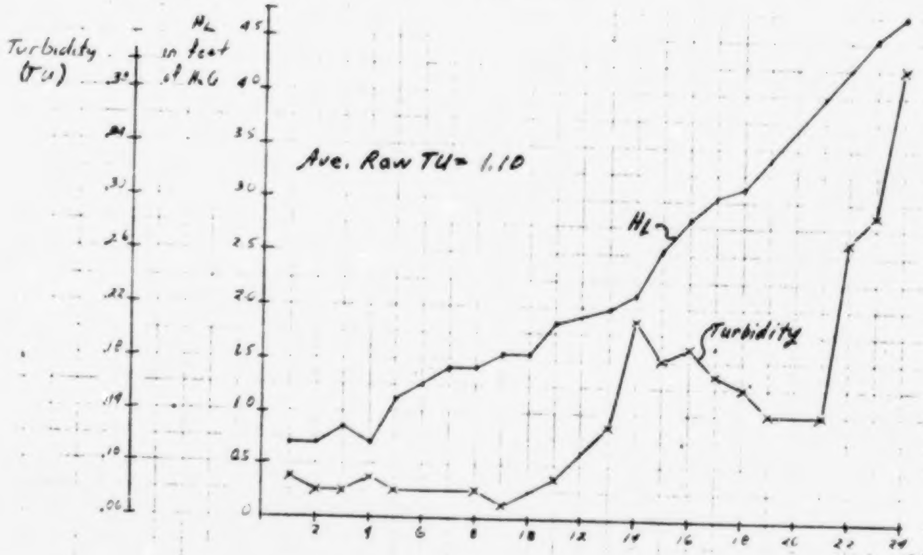
Head Loss and Effluent Turbidity Curves
MM-1 Run-78

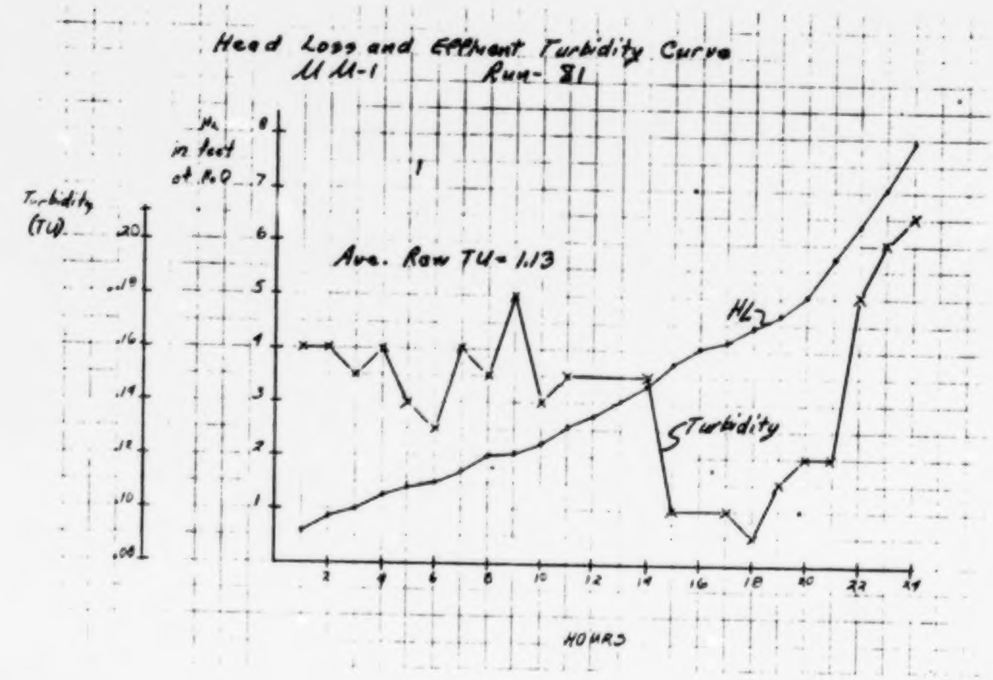


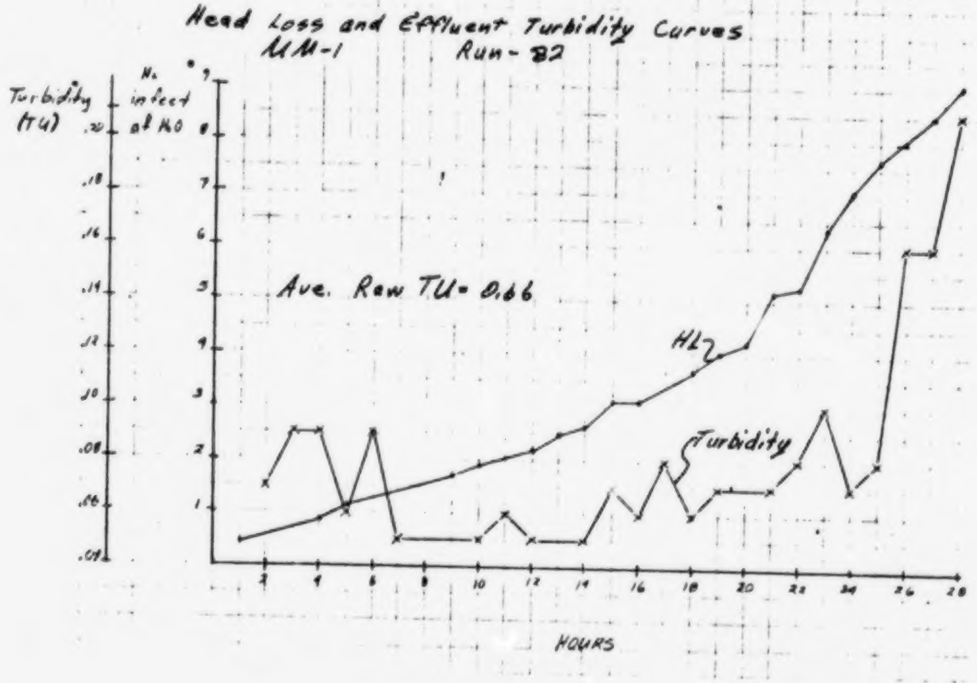
Head Loss and Effluent Turbidity Curves
MM-1 Run- 79

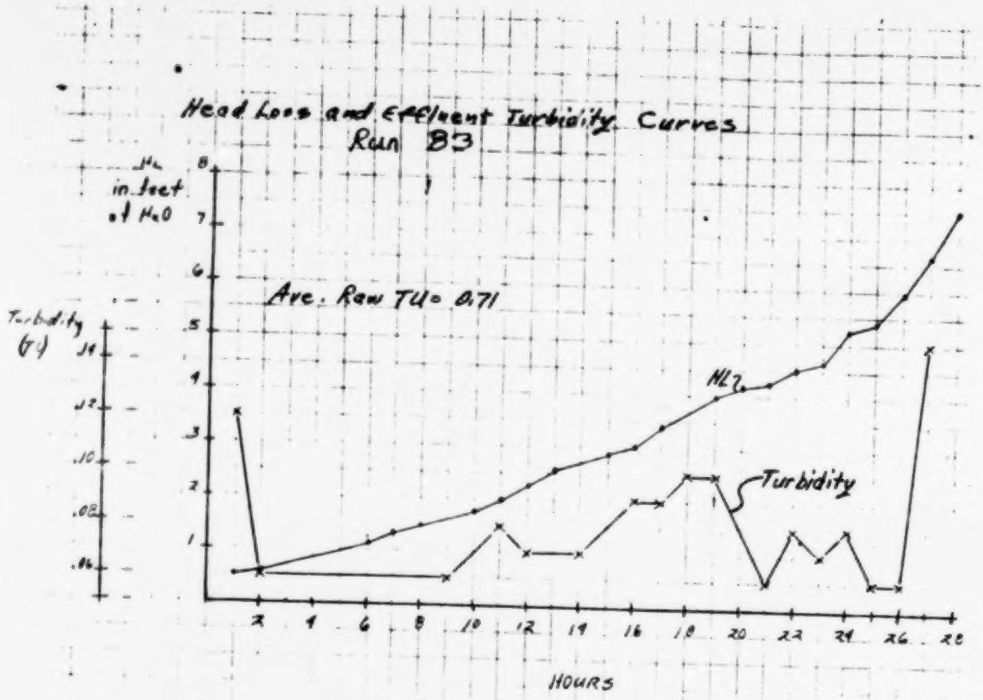


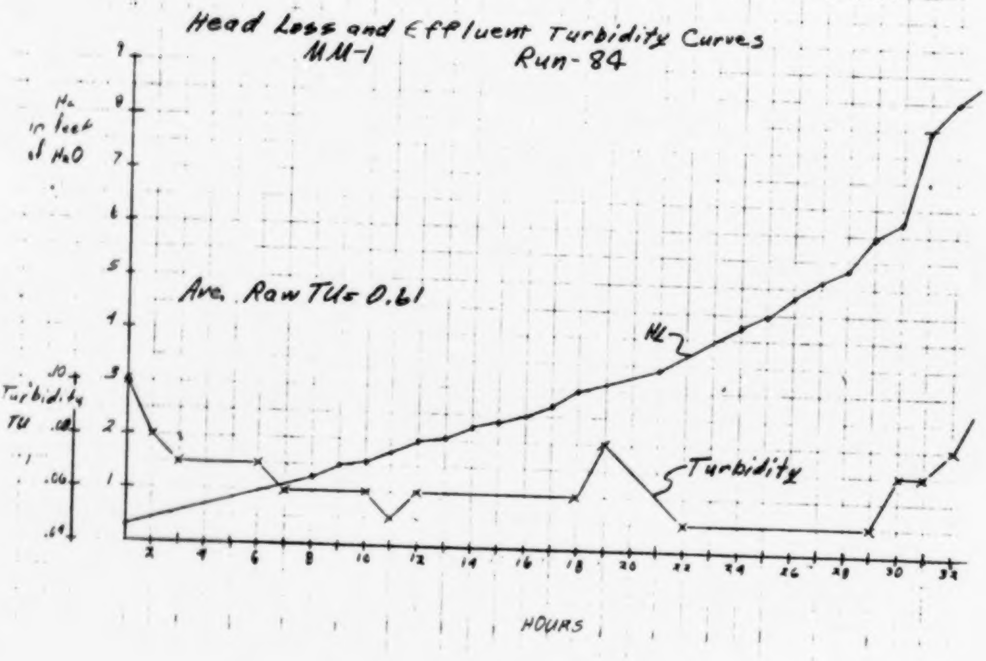
Head Loss and Effluent Turbidity Curves
MM-1 Run-80

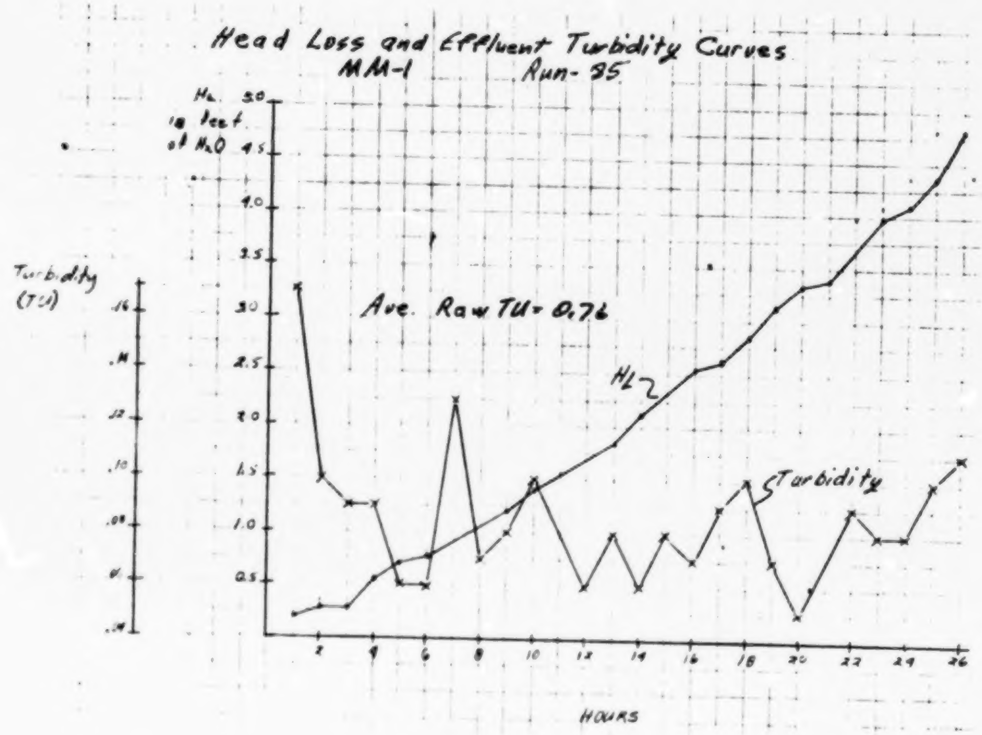


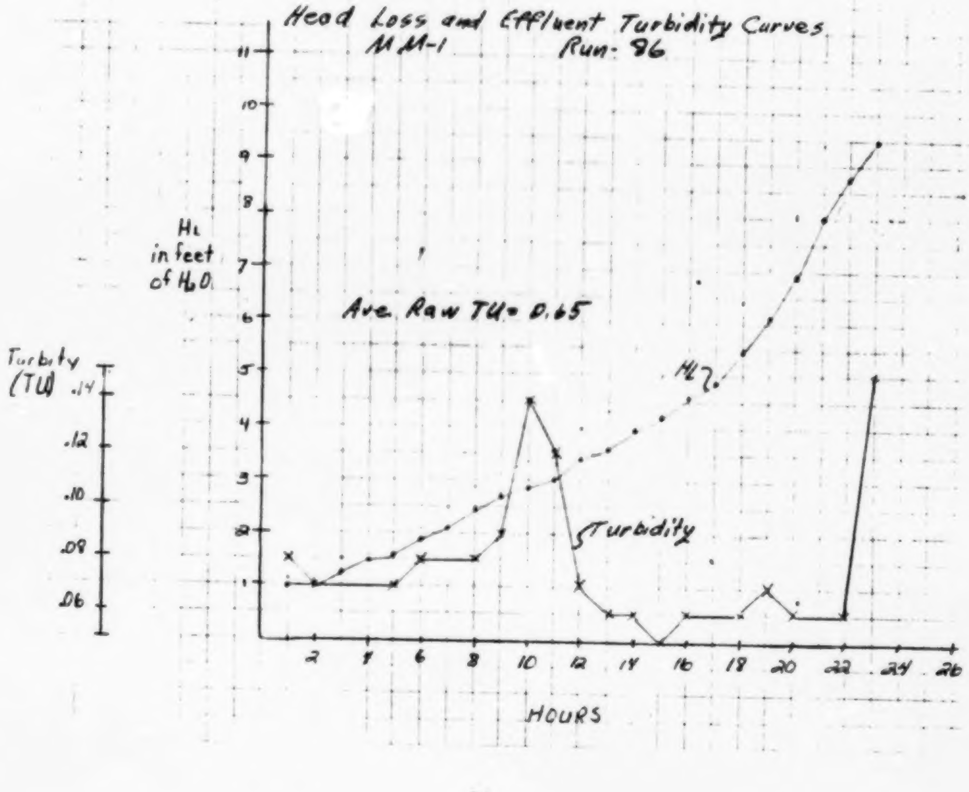

Head Loss and Effluent Turbidity Curve
MM-1 Run- 81
HL in feet of H2O
Turbidity (TU)
.20
.18
.16
.14
.12
.10
.08
8
7
6
5
4
3
2
1
Ave. Raw TU= 1.13
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
HOURS


Head Loss and Effluent Turbidity Curves
MM-1 Run- 82
Turbidity (TU)
HL in feet of H2O
.20
.18
.16
.14
.12
.10
.08
.06
.04
9
8
7
6
5
4
3
2
1
Ave. Raw TU= 0.66
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
28
HOURS


Head Loss and Effluent Turbidity Curves
Run 83
HL in feet of H₂O
Turbidity (TU)
Ave. Raw TU= 0.71
HL
Turbidity
HOURS
8
7
6
5
4
3
2
1
.14
.12
.10
.08
.06
2
4
6
8
10
12
14
16
18
20
22
24
26
28


Head Loss and Effluent Turbidity Curves
MM-1
Run-84
HL in feet of H₂O
Turbidity TU
Ave. Raw TU= 0.61
HL
Turbidity
HOURS
9
8
7
6
5
4
3
2
1
.10
.08
.06
.04
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32


Head Loss and Effluent Turbidity Curves
MM-1 Run-85
HL in feet of H2O
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
Turbidity (TU)
.16
.14
.12
.10
.08
.06
.04
Ave. Raw TU= 0.76
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
HOURS


Head Loss and Effluent Turbidity Curves
MM-1 Run-86
11
10
9
8
7
6
5
4
3
2
1
HL in feet of H2O
Turbity (TU)
.14
.12
.10
.08
.06
Ave. Raw TU= 0.65
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
HOURS

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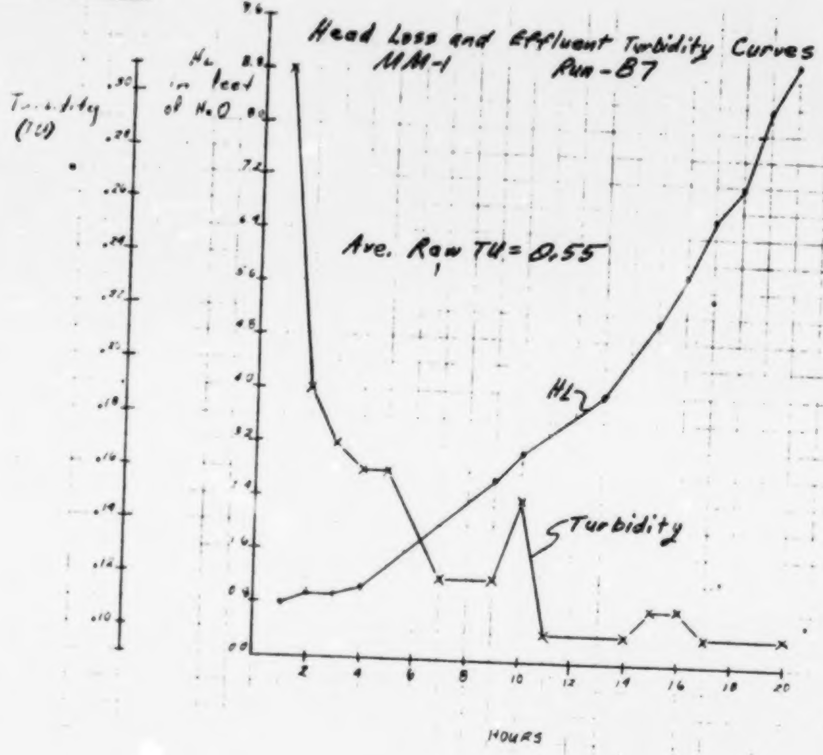
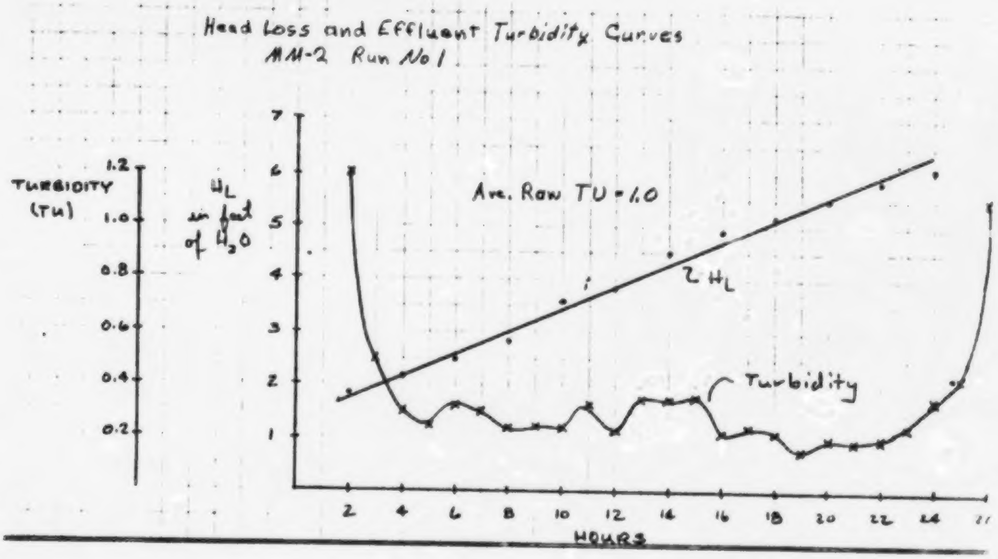
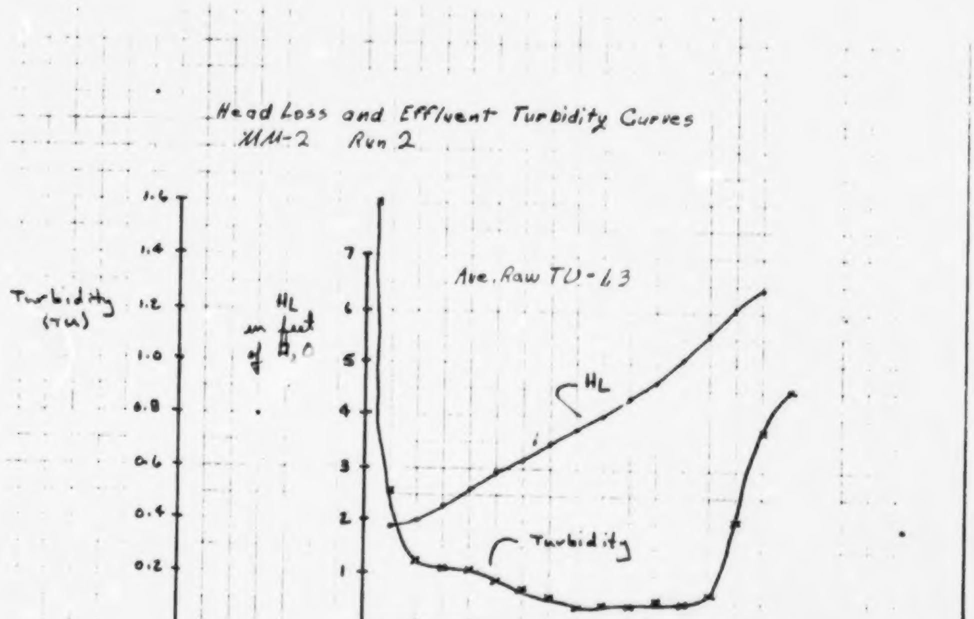
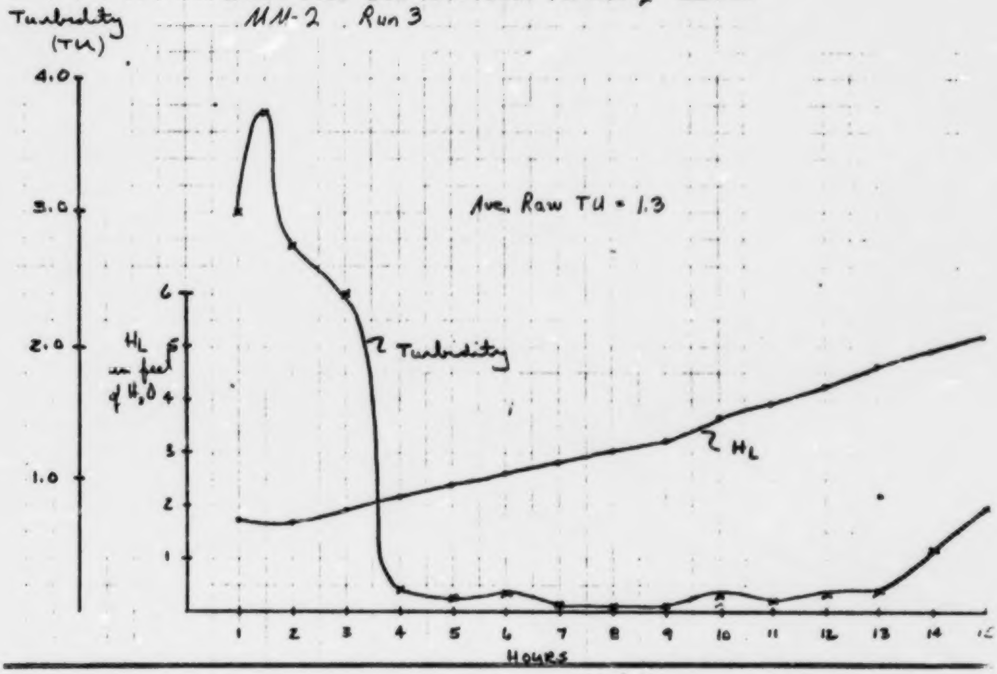


APPENDIX D-2 - GRANULAR MEDIA FILTRATION (MM-2) HEAD LOSS AND TURBIDITY CURVES

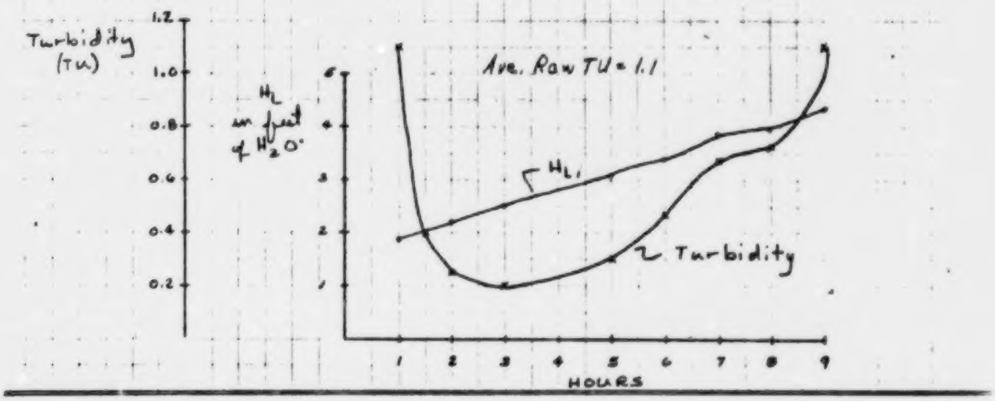




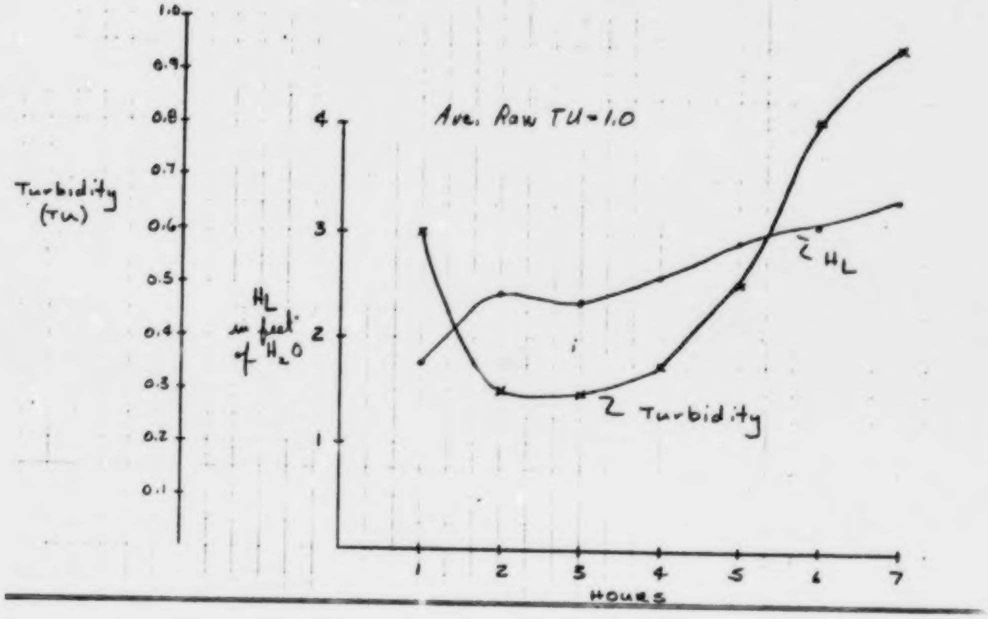
Head Loss and Effluent Turbidity Curves
MM-2 Run 3



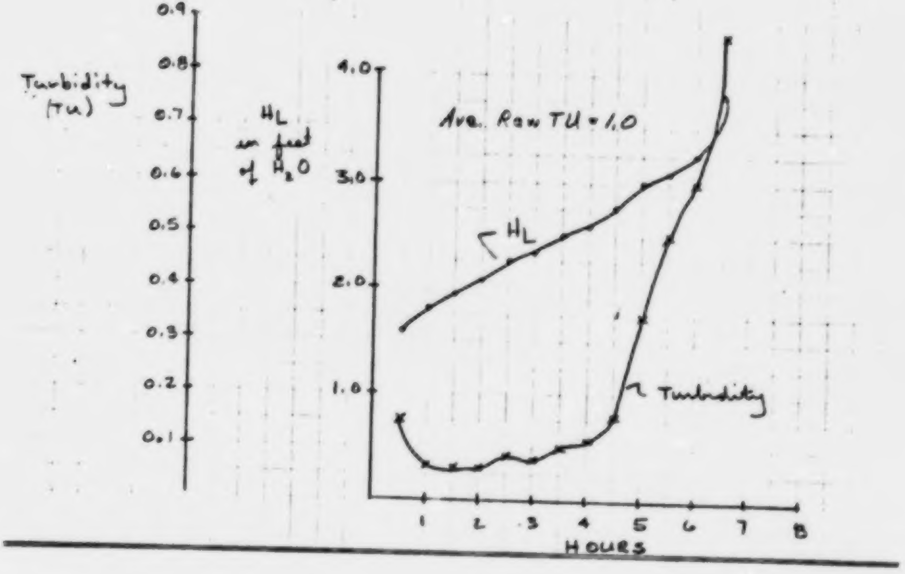
Head Loss and Effluent Turbidity Curves
MM-2 Run 4



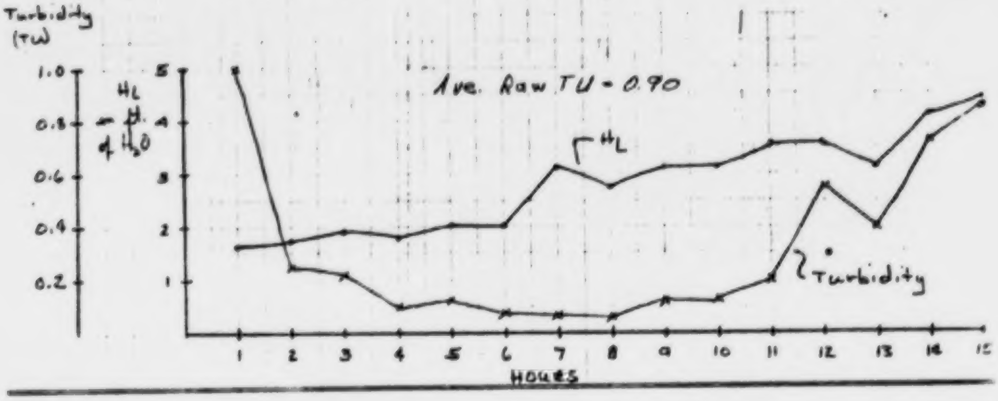
Head Loss and Effluent Turbidity Curves
MM-2 Run-5



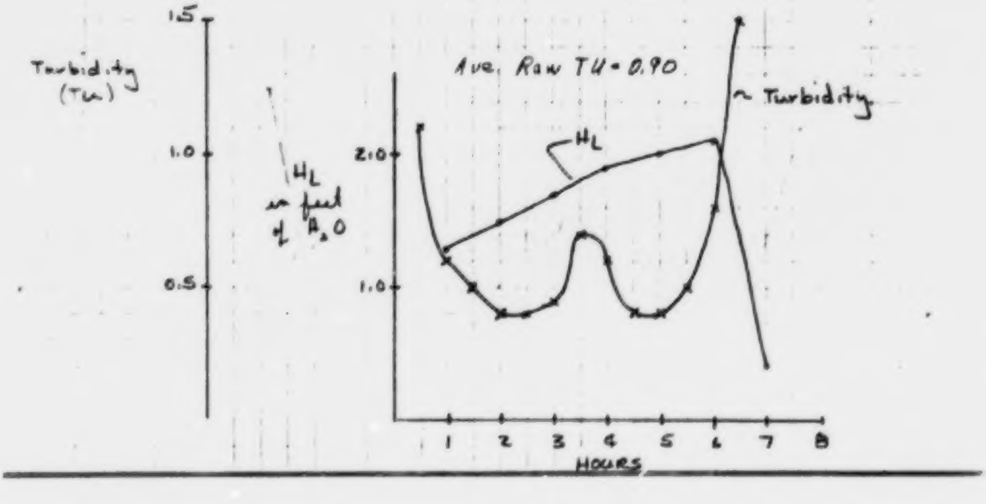
Head Loss and Effluent Turbidity Curves
MM-2 Run-6



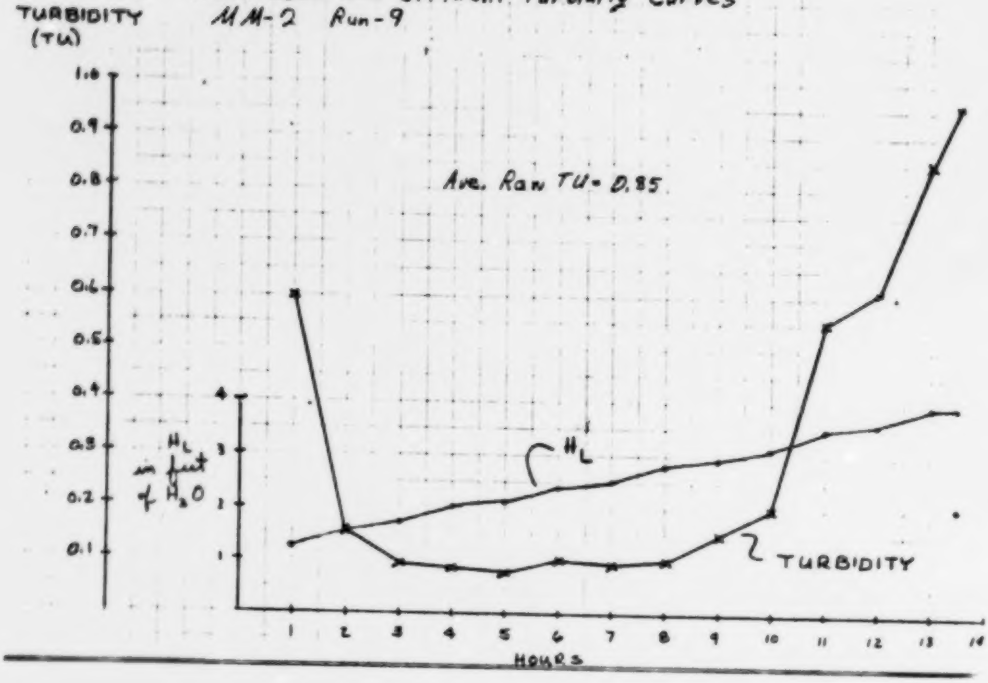
Head Loss and Effluent Turbidity Curves
MM-2 Run 7



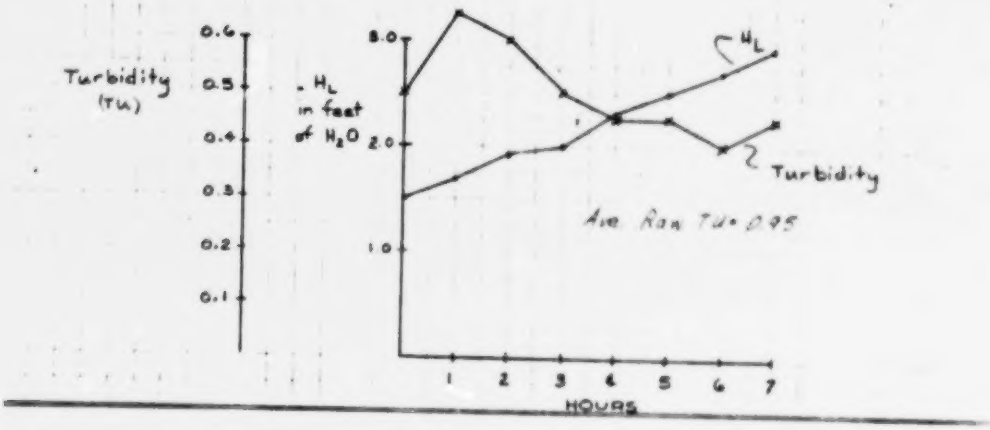
Head Loss and Effluent Turbidity Curves
MM-2 Run-8

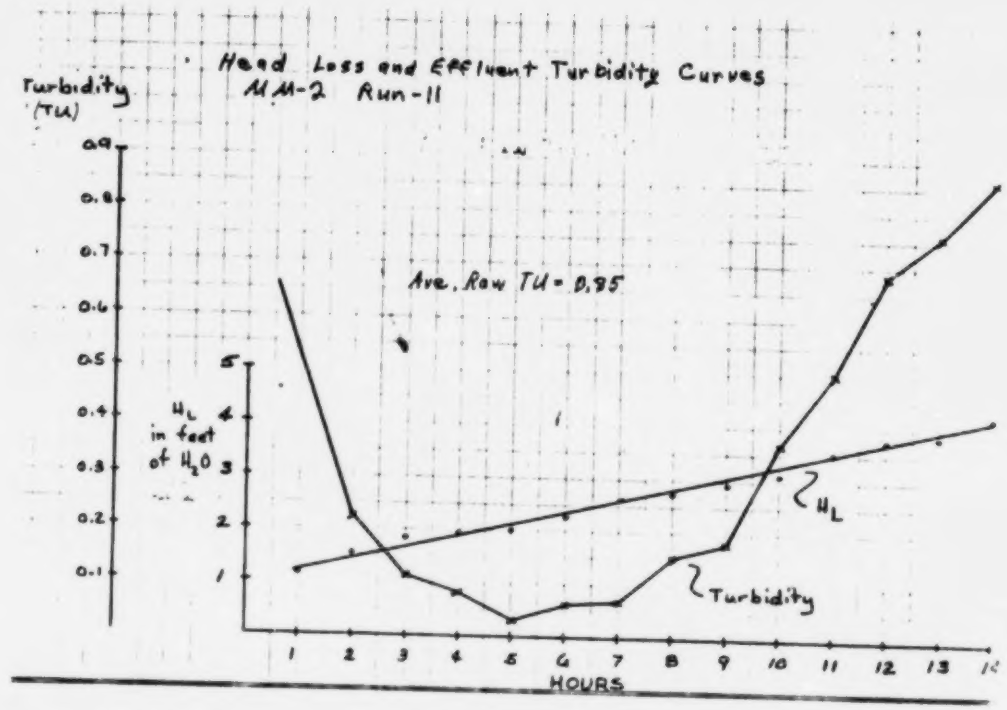


Head Loss and Effluent Turbidity Curves
MM-2 Run-9

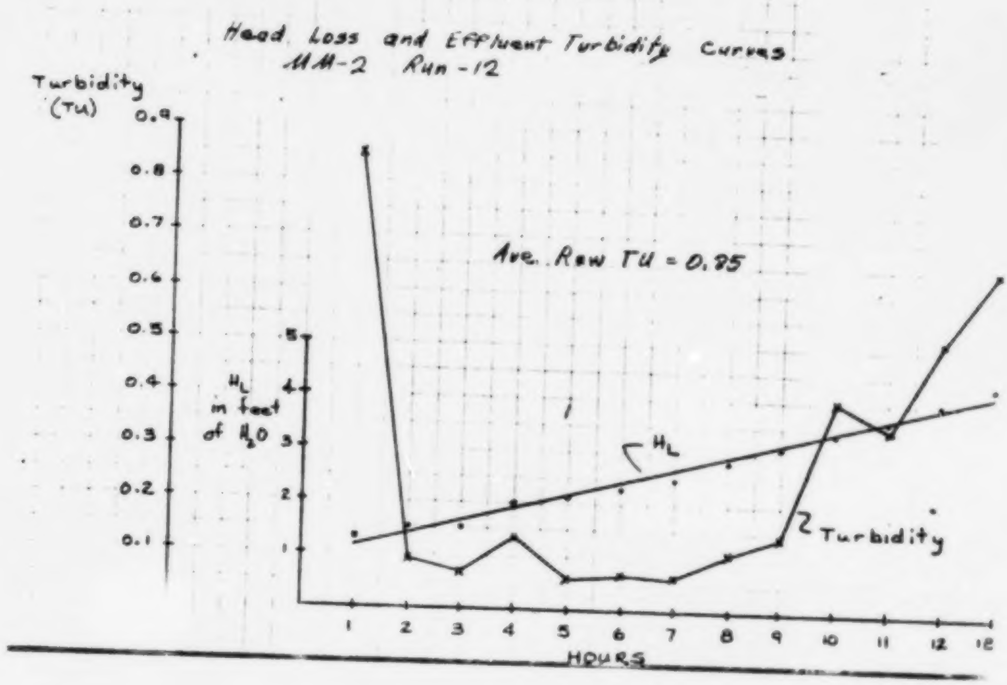


Head Loss and Effluent Turbidity Curves
MM-2 Run-10

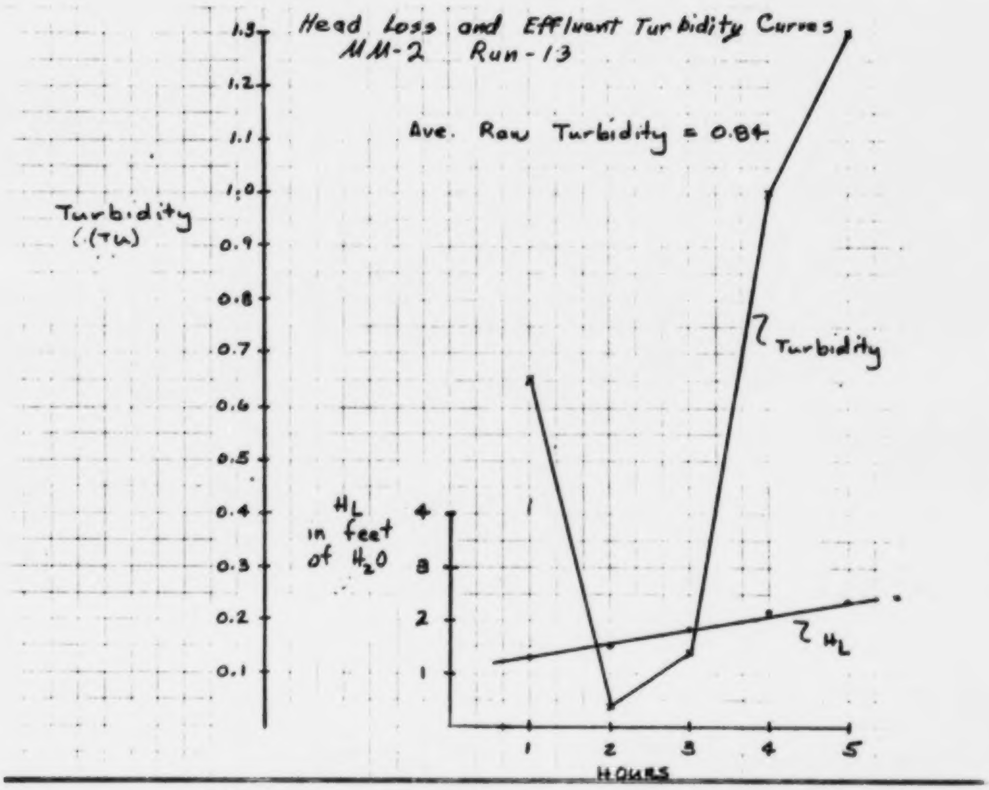


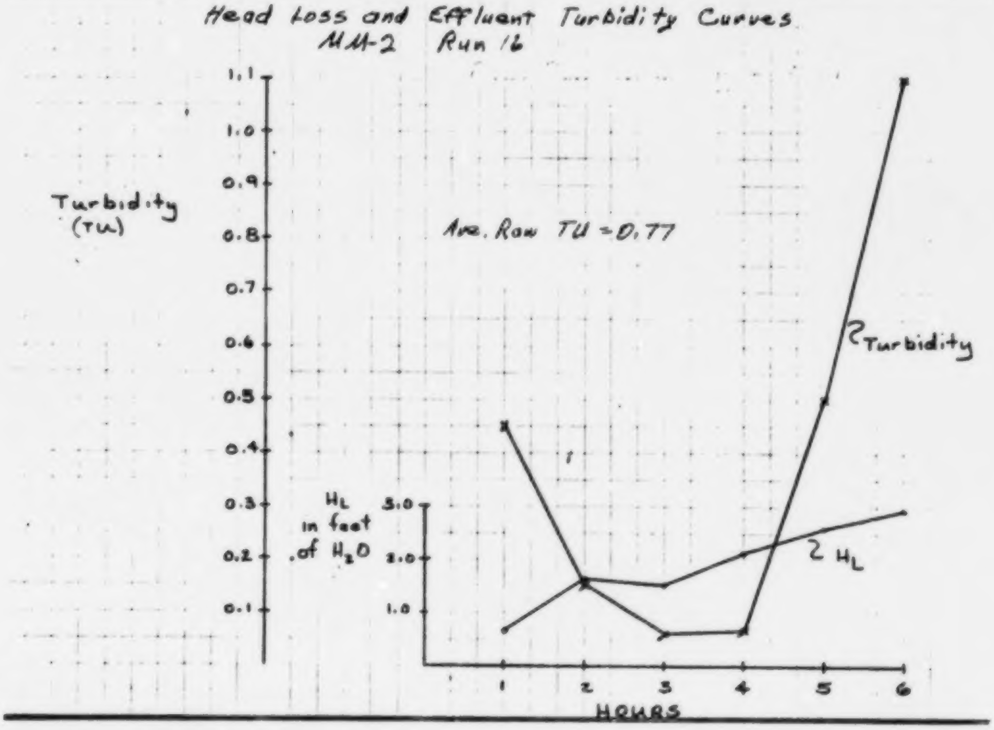


Head Loss and Effluent Turbidity Curves
MM-2 Run-11

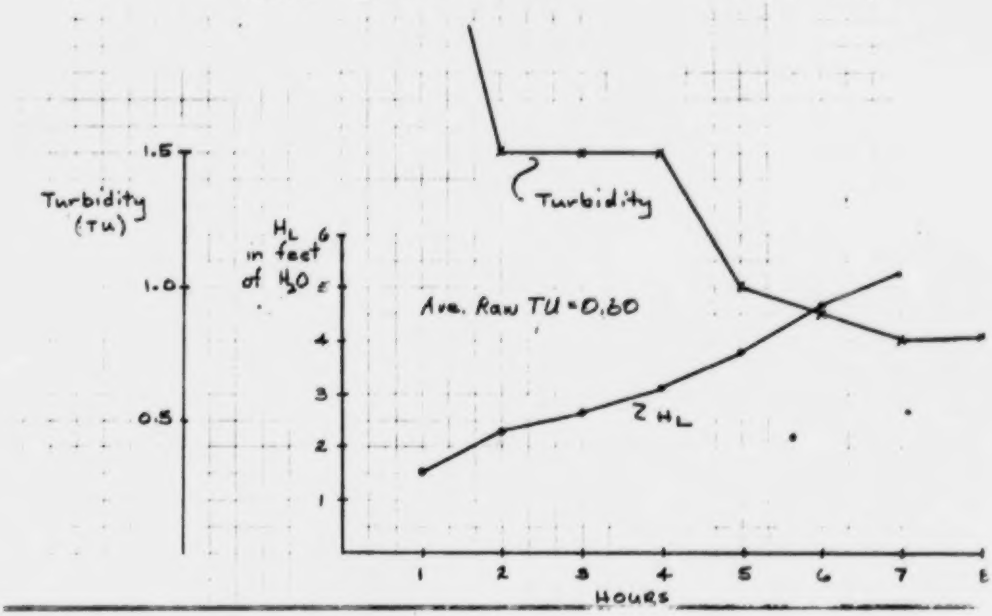


Head Loss and Effluent Turbidity Curves
MM-2 Run-12

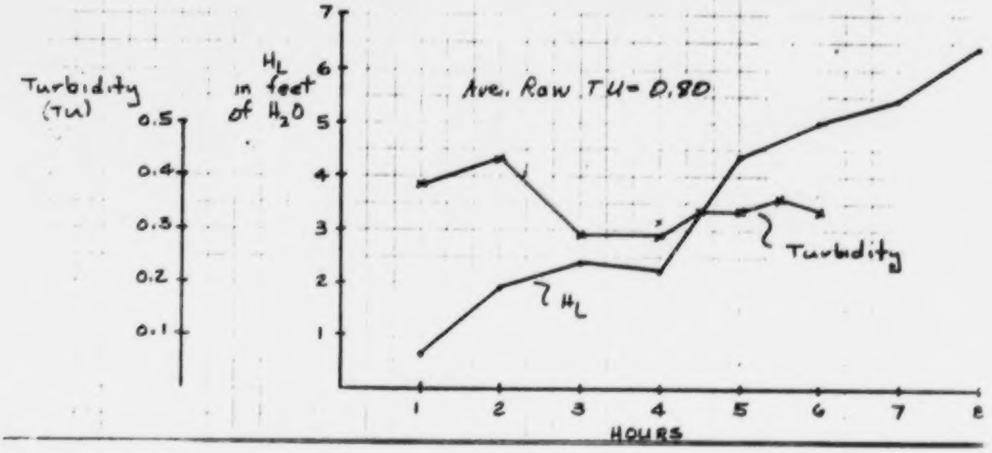

Head Loss and Effluent Turbidity Curves
MM-2 Run-13
Ave. Raw Turbidity = 0.84
Turbidity (TU)
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
H_L in feet of H_2O
4
3
2
1
Turbidity
H_L
1
2
3
4
5
HOURS

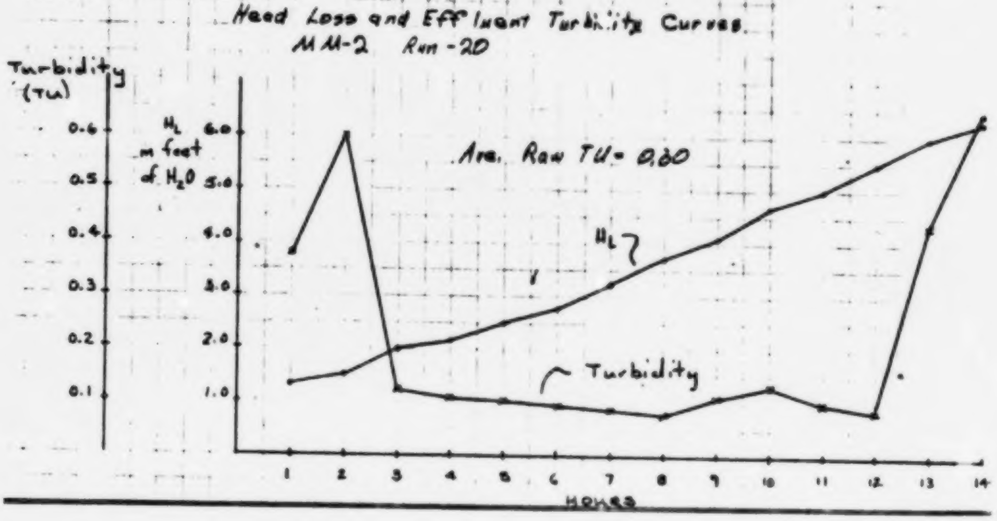

Head Loss and Effluent Turbidity Curves
MM-2 Run 16
Ave. Raw TU = 0.77
Turbidity (TU)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
H_L in feet of H_2O
3.0
2.0
1.0
Turbidity
H_L
1
2
3
4
5
6
HOURS

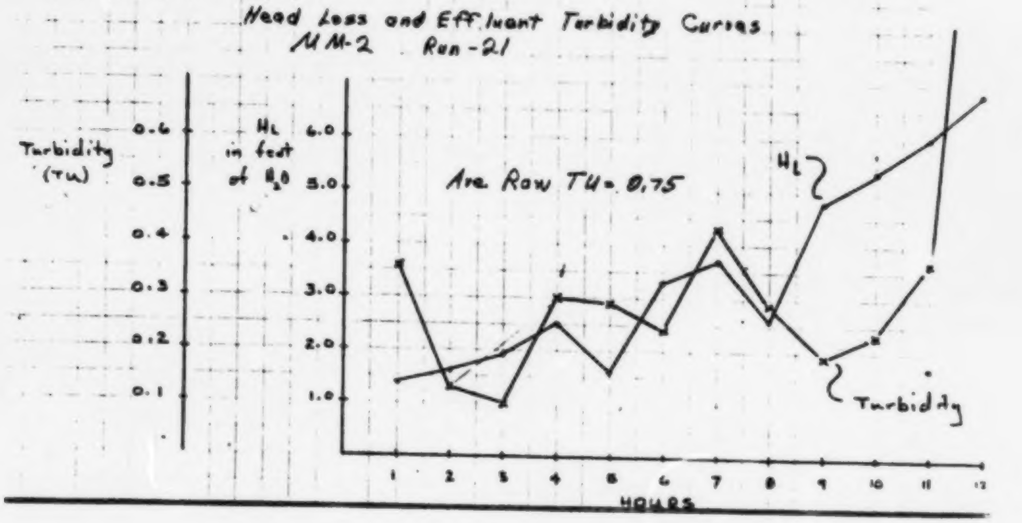
Head Loss and Effluent Turbidity Curves
MM-2 Run-18



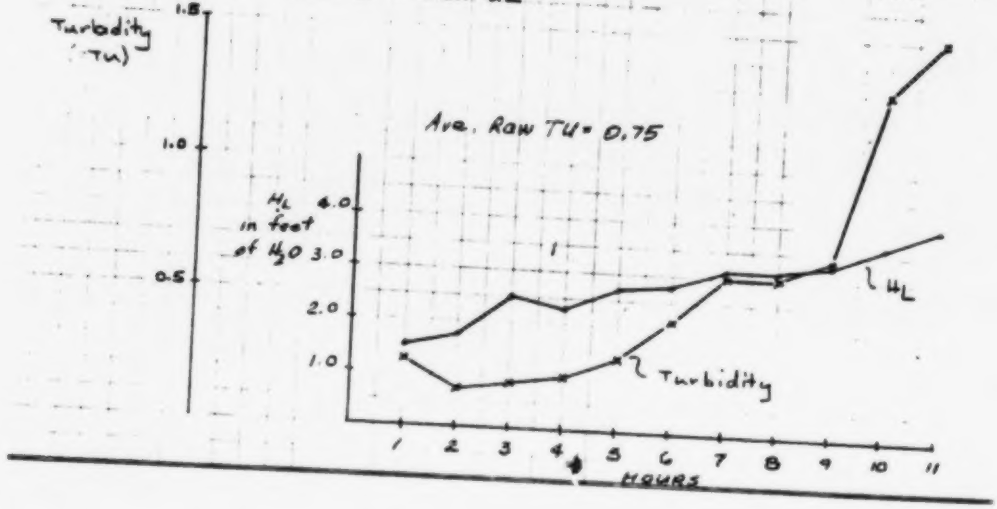
Head Loss and Effluent Turbidity Curves
MM-2 Run-19



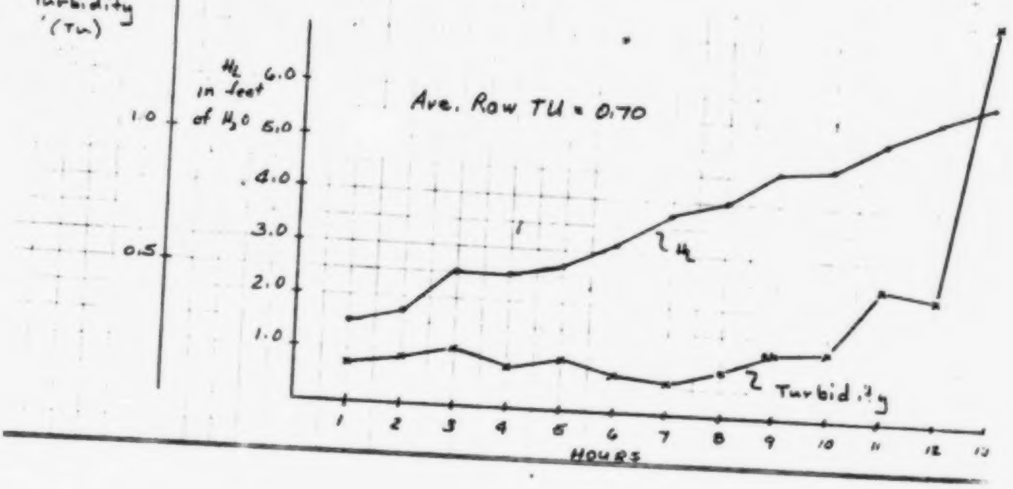

Head Loss and Effluent Turbidity Curves
MM-2 Run-20
Turbidity (TU)
0.6
0.5
0.4
0.3
0.2
0.1
H_L in feet of H_2O
6.0
5.0
4.0
3.0
2.0
1.0
Ave. Raw TU = 0.30
H_L
Turbidity
1
2
3
4
5
6
7
8
9
10
11
12
13
14
HOURS

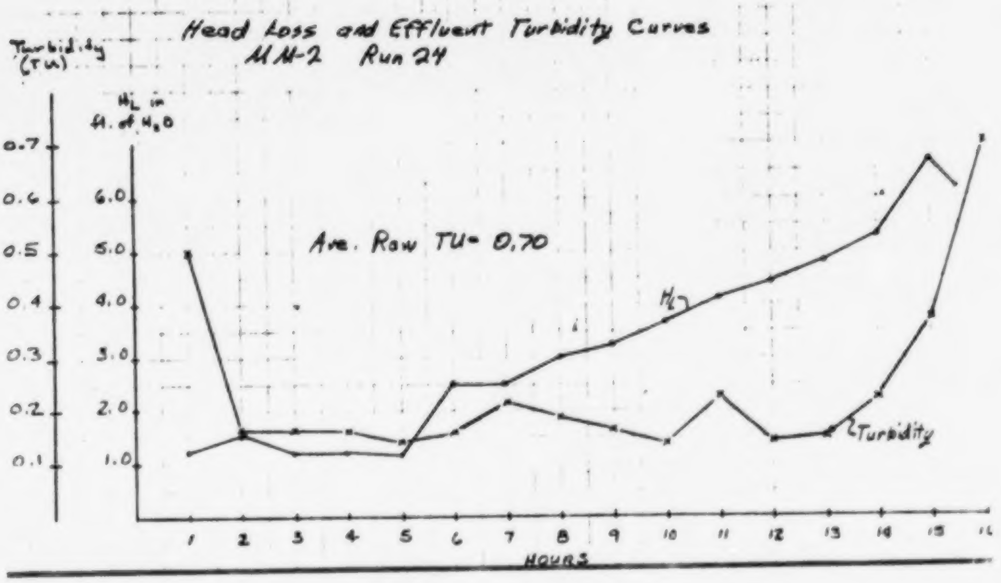

Head Loss and Effluent Turbidity Curves
MM-2 Run-21
Turbidity (TU)
0.6
0.5
0.4
0.3
0.2
0.1
H_L in feet of H_2O
6.0
5.0
4.0
3.0
2.0
1.0
Ave. Raw TU = 0.75
H_L
Turbidity
1
2
3
4
5
6
7
8
9
10
11
12
HOURS

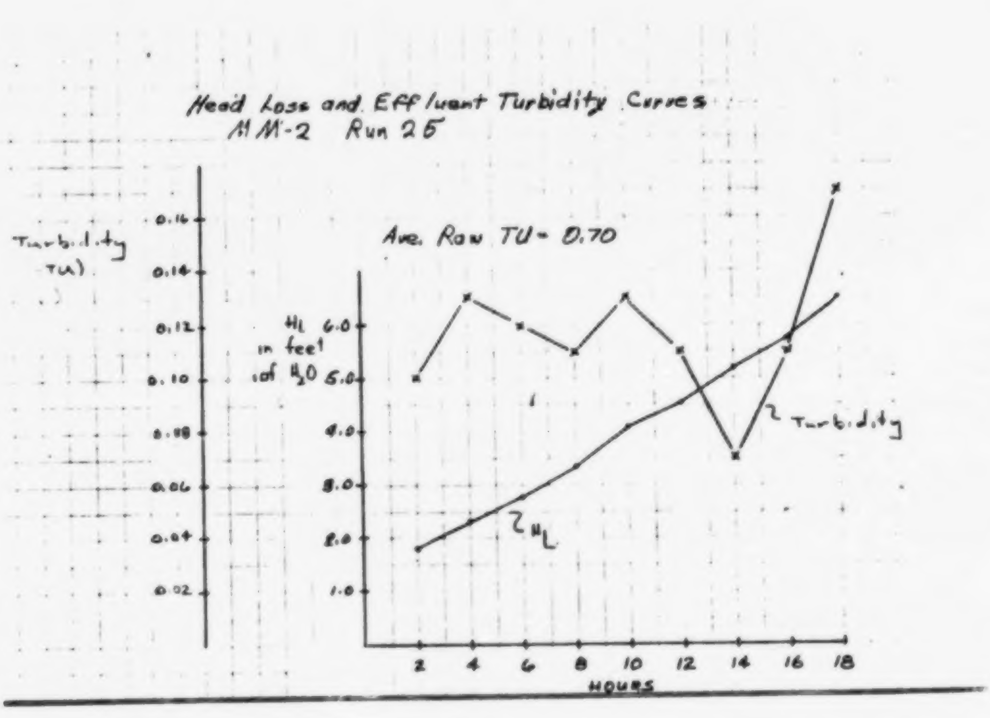
Head Loss and Effluent Turbidity Curves
MM-2 Run-22



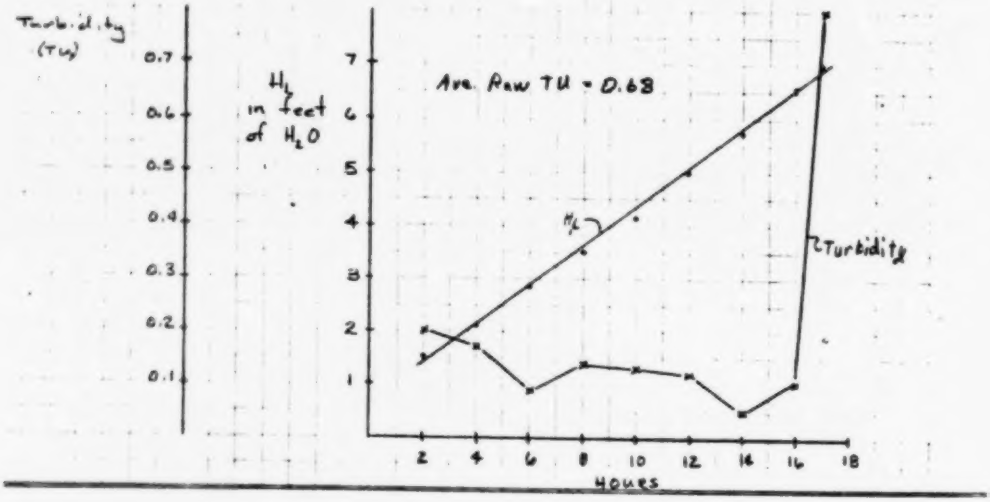
Head Loss and Effluent Turbidity Curves
MM-2 Run-23



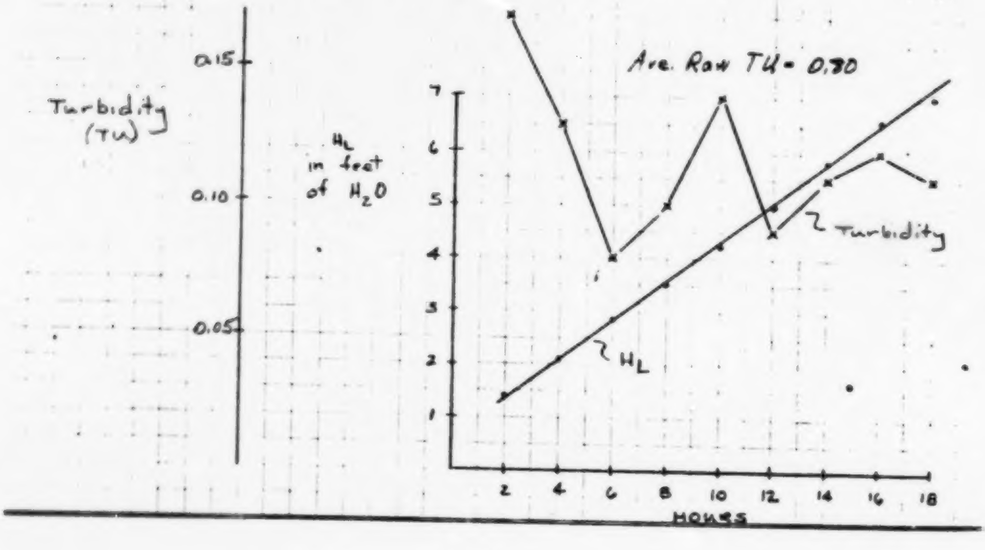

Head Loss and Effluent Turbidity Curves
MM-2 Run 24
Turbidity (TU)
H_L in ft. of H_2O
0.7
0.6
0.5
0.4
0.3
0.2
0.1
6.0
5.0
4.0
3.0
2.0
1.0
Ave. Raw TU= 0.70
H_L
Turbidity
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
HOURS

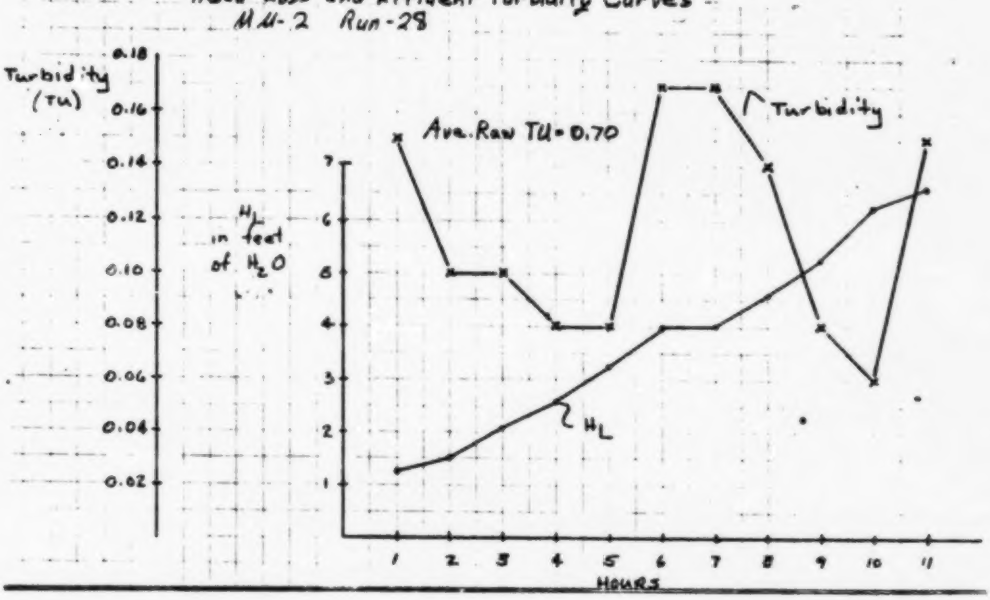

Head Loss and Effluent Turbidity Curves
MM-2 Run 25
Turbidity (TU)
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
Ave. Raw TU= 0.70
H_L in feet of H_2O
6.0
5.0
4.0
3.0
2.0
1.0
Turbidity
H_L
2
4
6
8
10
12
14
16
18
HOURS

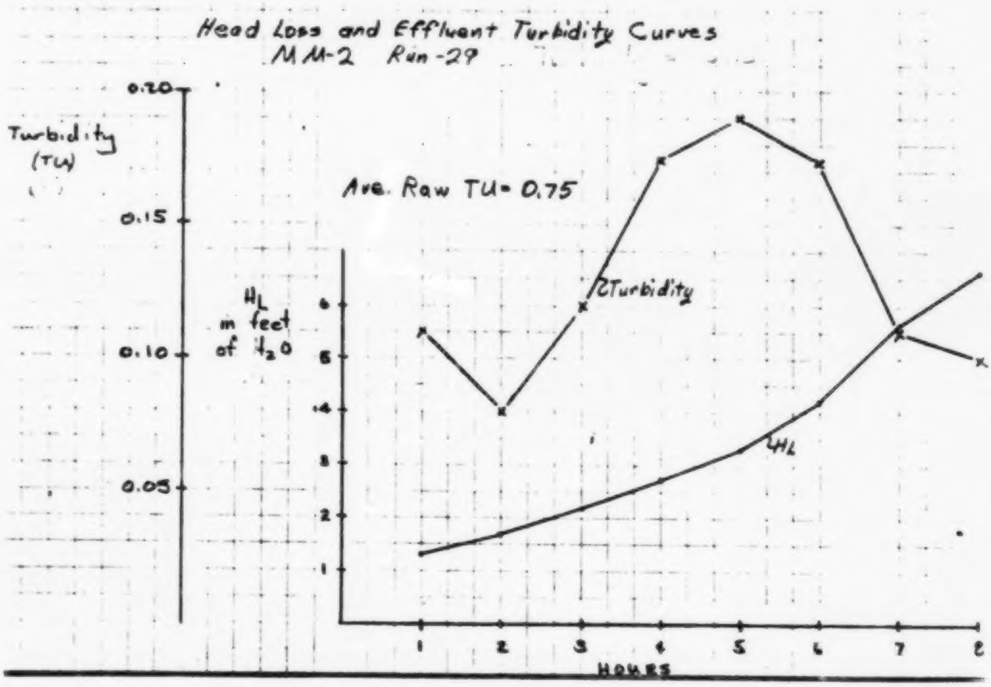
Head Loss and Effluent Turbidity Curves
MM-2 Run-26



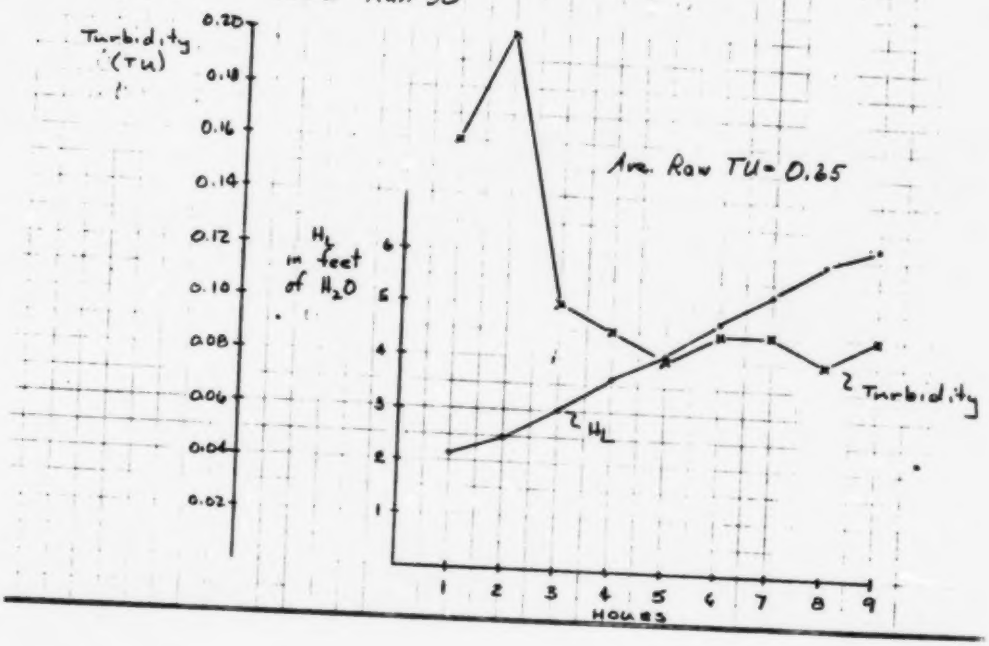
Head Loss and Effluent Turbidity Curves
MM-2 Run-27



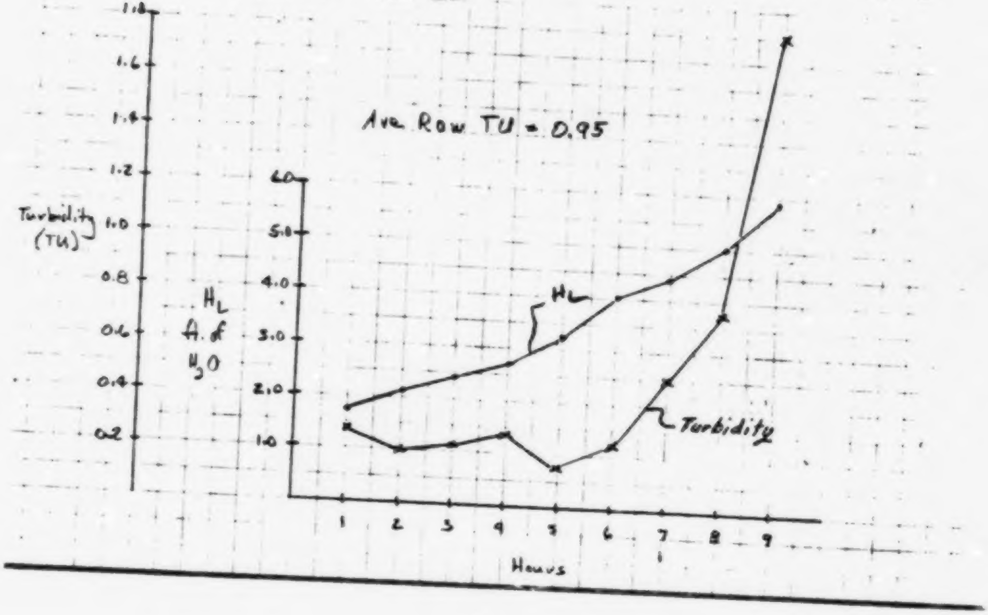

Head Loss and Effluent Turbidity Curves
MM-2 Run-28
Turbidity (TU)
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
Ave. Raw TU = 0.70
Turbidity
H_L in feet of H_2O
7
6
5
4
3
2
1
H_L
1
2
3
4
5
6
7
8
9
10
11
HOURS

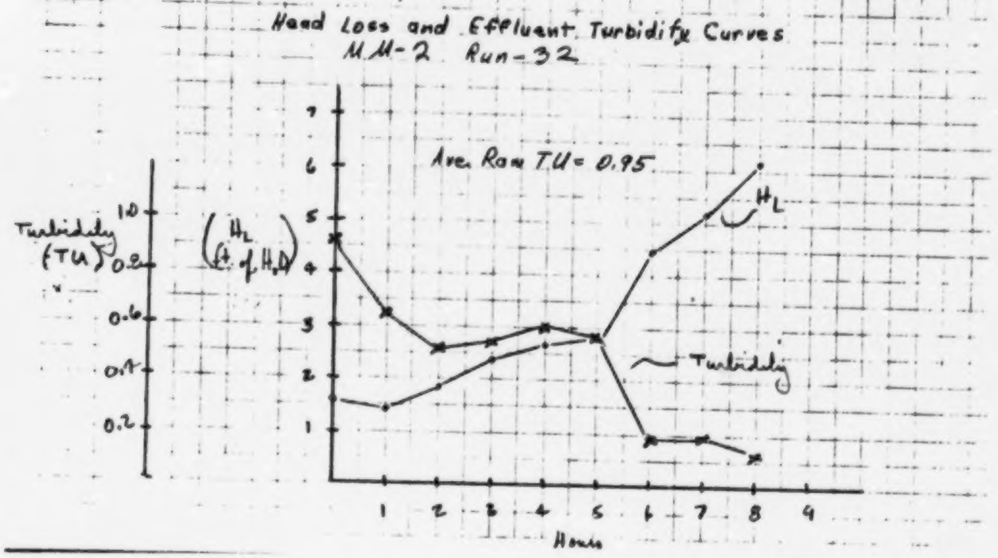

Head Loss and Effluent Turbidity Curves
MM-2 Run-29
0.20
Turbidity (TU)
Ave. Raw TU = 0.75
0.15
H_L in feet of H_2O
Turbidity
0.10
0.05
6
5
4
3
2
1
H_L
1
2
3
4
5
6
7
8
HOURS

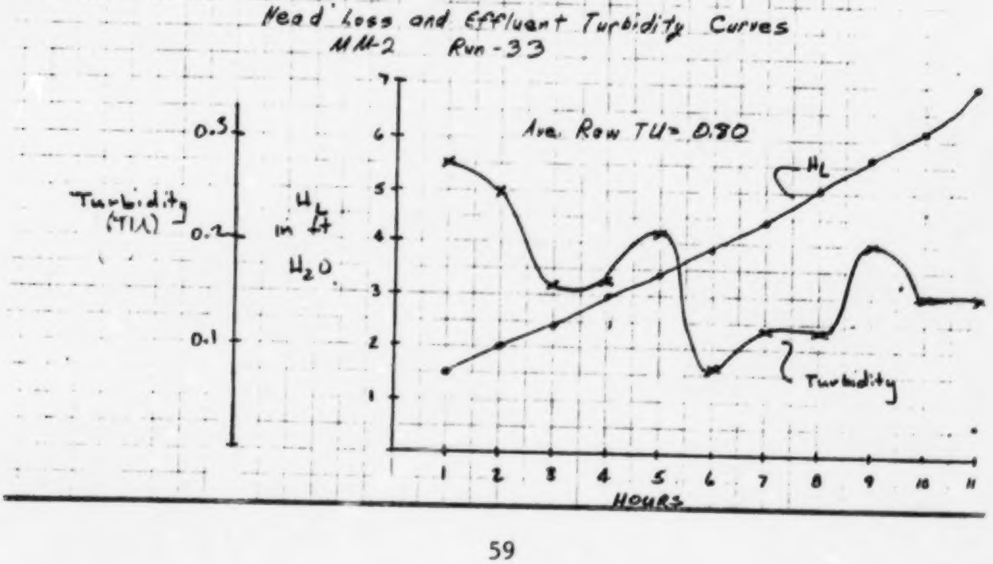
Head Loss and Effluent Turbidity Curves
MM-2 Run-30

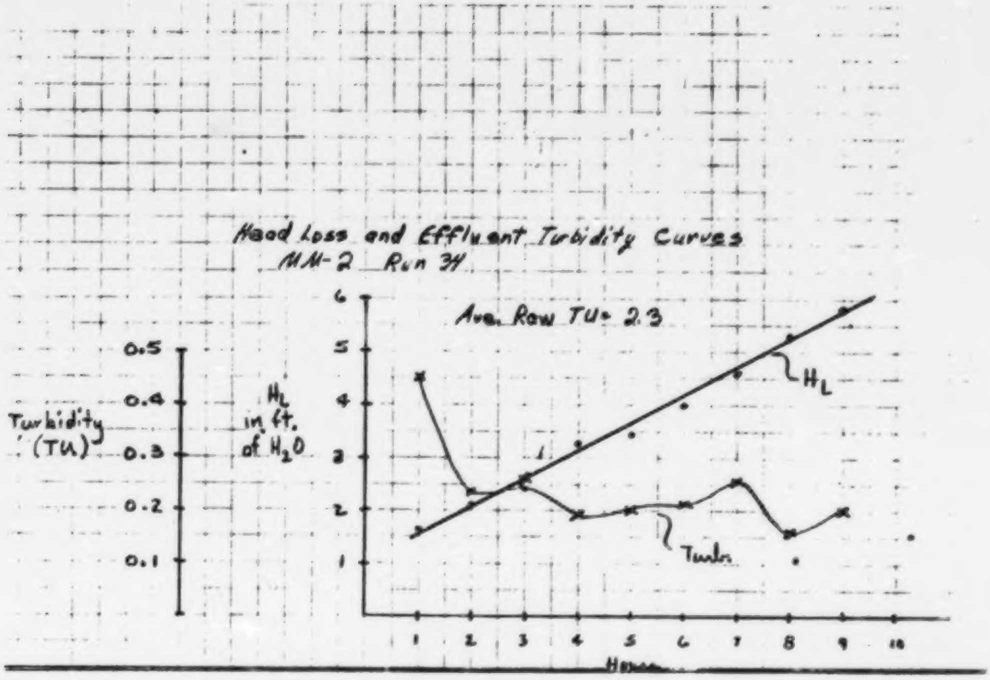


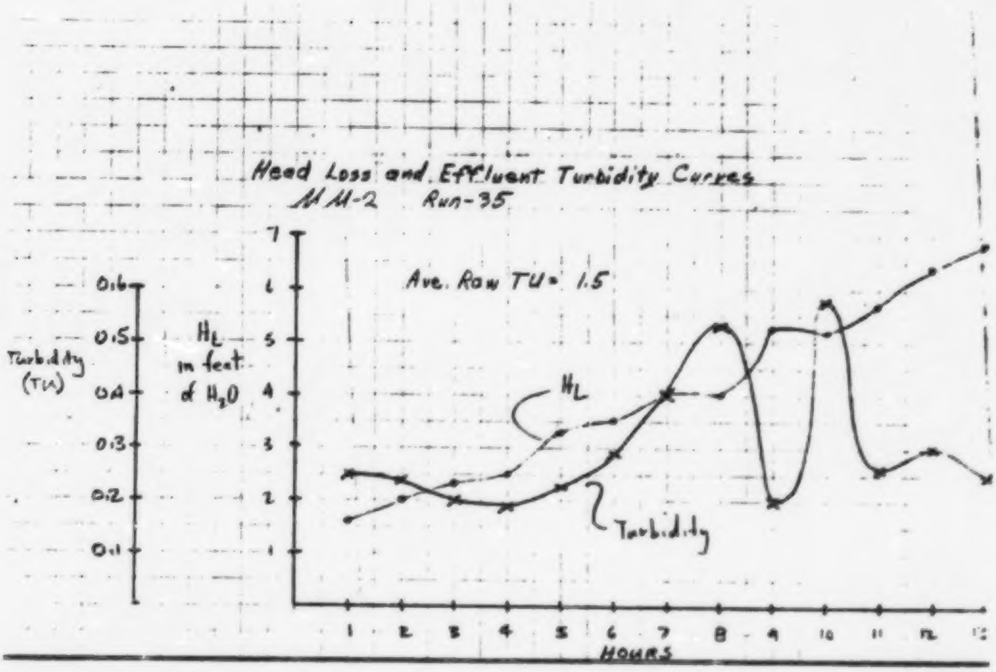
Head Loss and Effluent Turbidity Curves
MM-2 Run-31



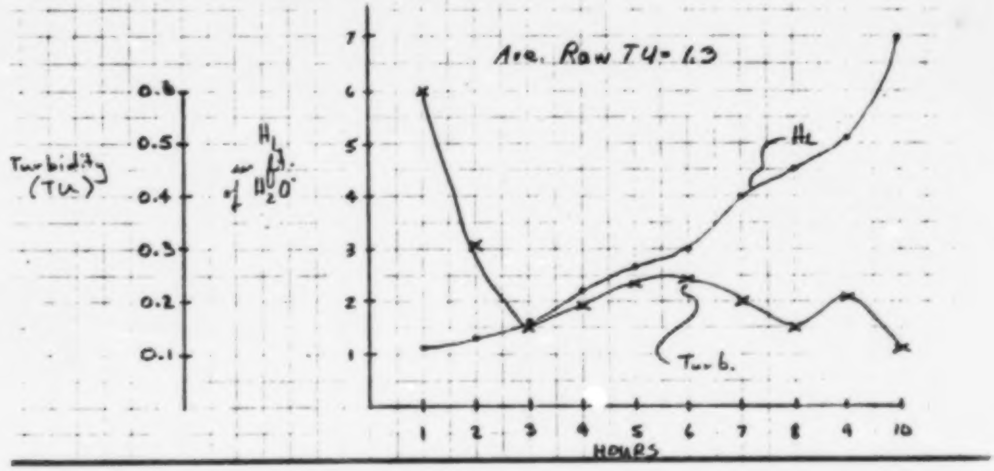

Head Loss and Effluent Turbidity Curves
MM-2 Run-32


Head Loss and Effluent Turbidity Curves
MM-2 Run-33

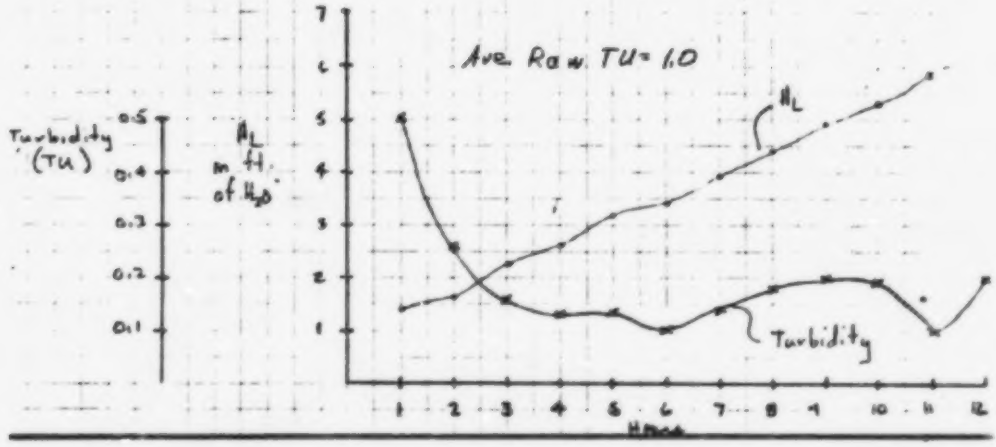

Head Loss and Effluent Turbidity Curves
MM-2 Run 34
Ave. Raw TU = 2.3
Turbidity (TU)
0.5
0.4
0.3
0.2
0.1
H_L in ft. of H_2O
6
5
4
3
2
1
H_L
Turb.
1
2
3
4
5
6
7
8
9
10
Hours


Head Loss and Effluent Turbidity Curves
MM-2 Run-35
Ave. Raw TU = 1.5
Turbidity (TU)
0.6
0.5
0.4
0.3
0.2
0.1
H_L in feet of H_2O
7
6
5
4
3
2
1
H_L
Turbidity
1
2
3
4
5
6
7
8
9
10
11
12
HOURS

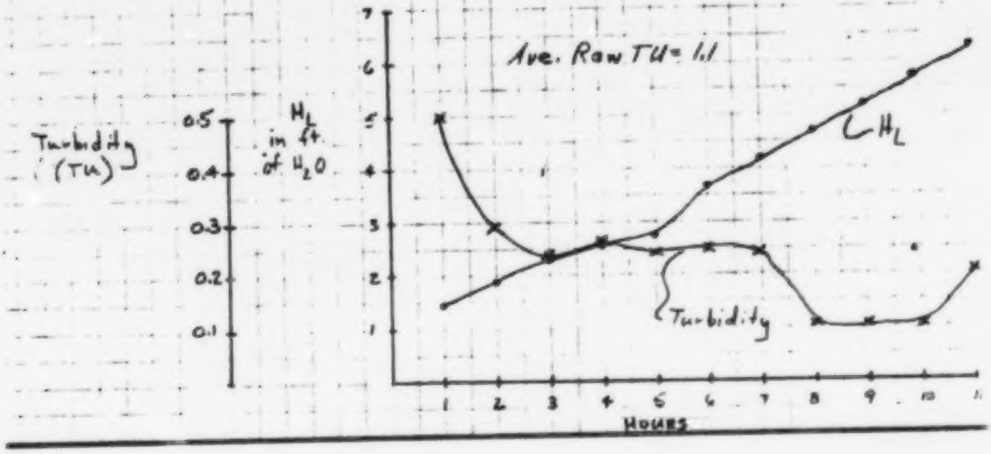
Head Loss and Effluent Turbidity Curves
MM-2 Run-36



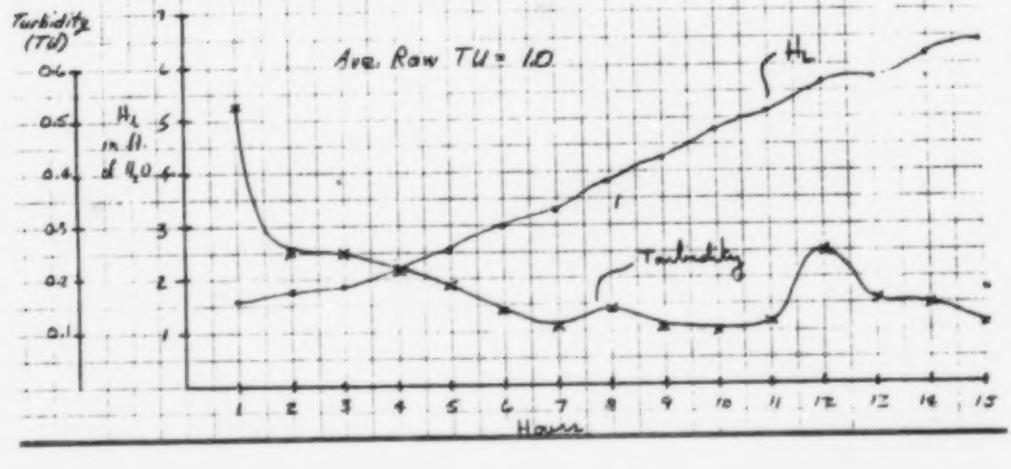
Head Loss and Effluent Turbidity Curves
MM-2 Run-37

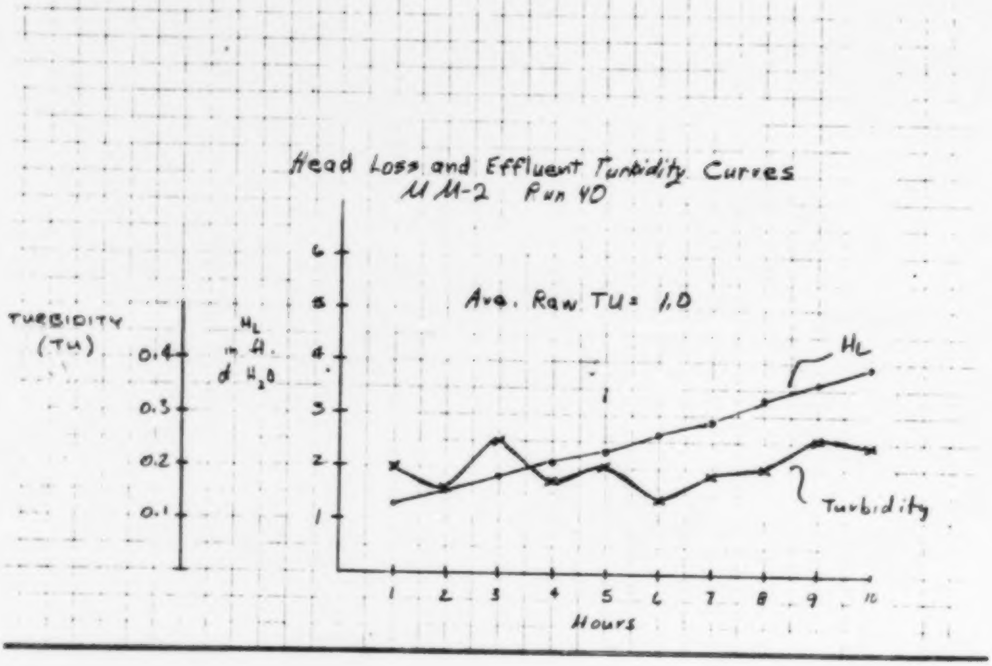


Head Loss and Turbidity Curves
MM-2 Run 38

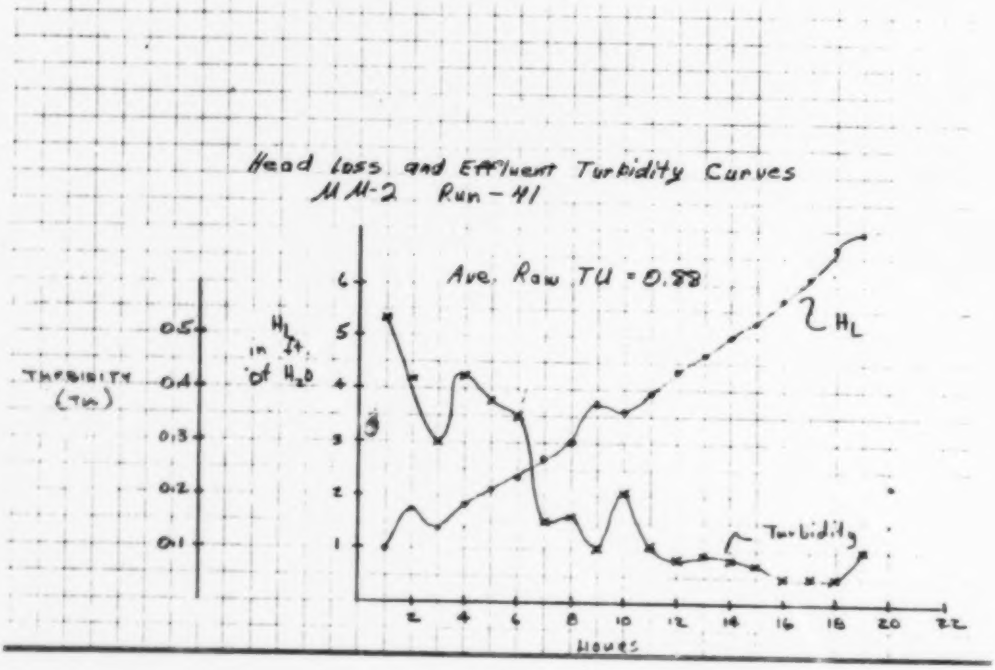


Head Loss and Effluent Turbidity Curves
MM-2 Run-39

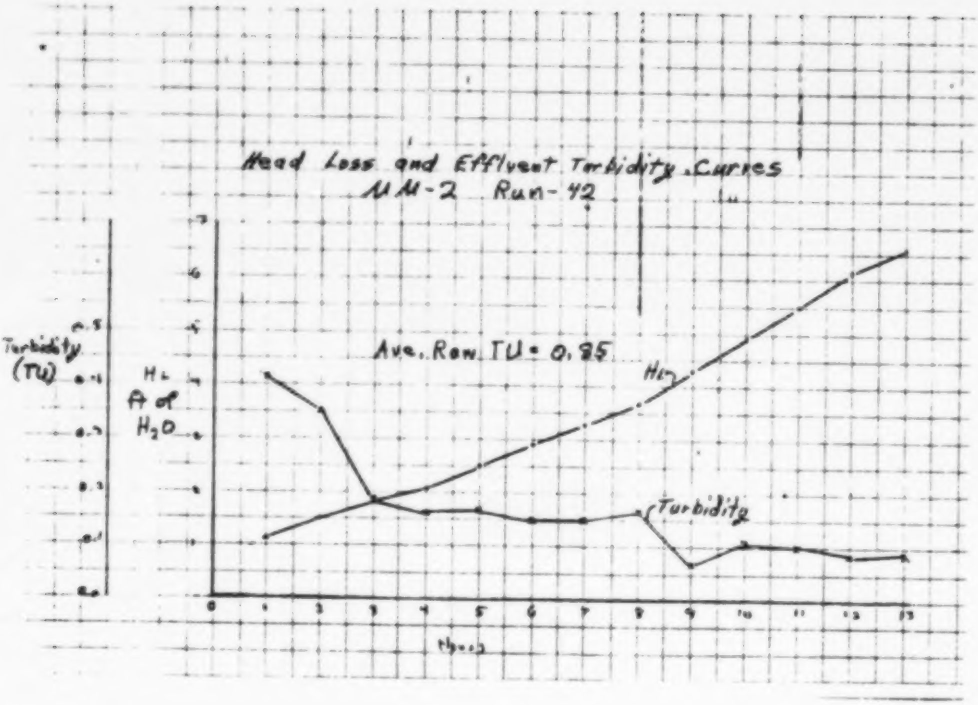


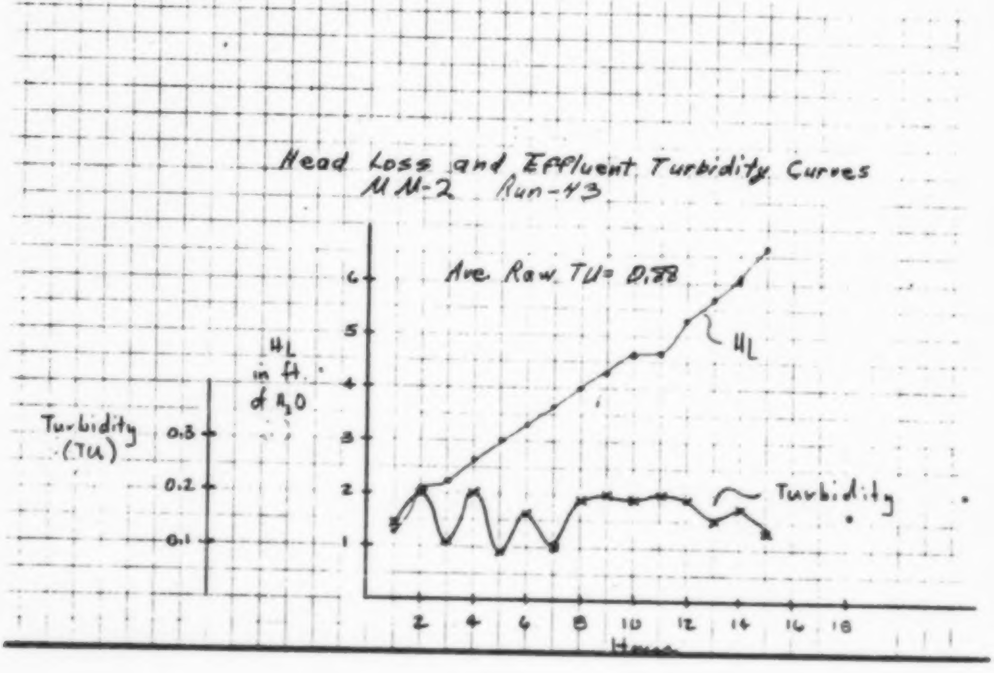


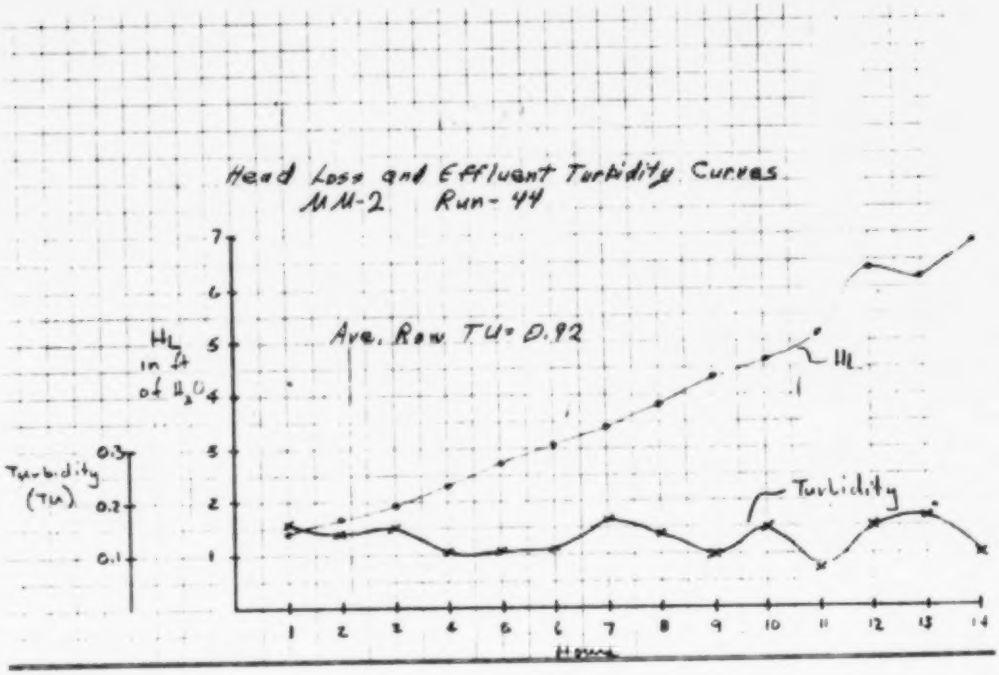
Head Loss and Effluent Turbidity Curves
MM-2 Run 40

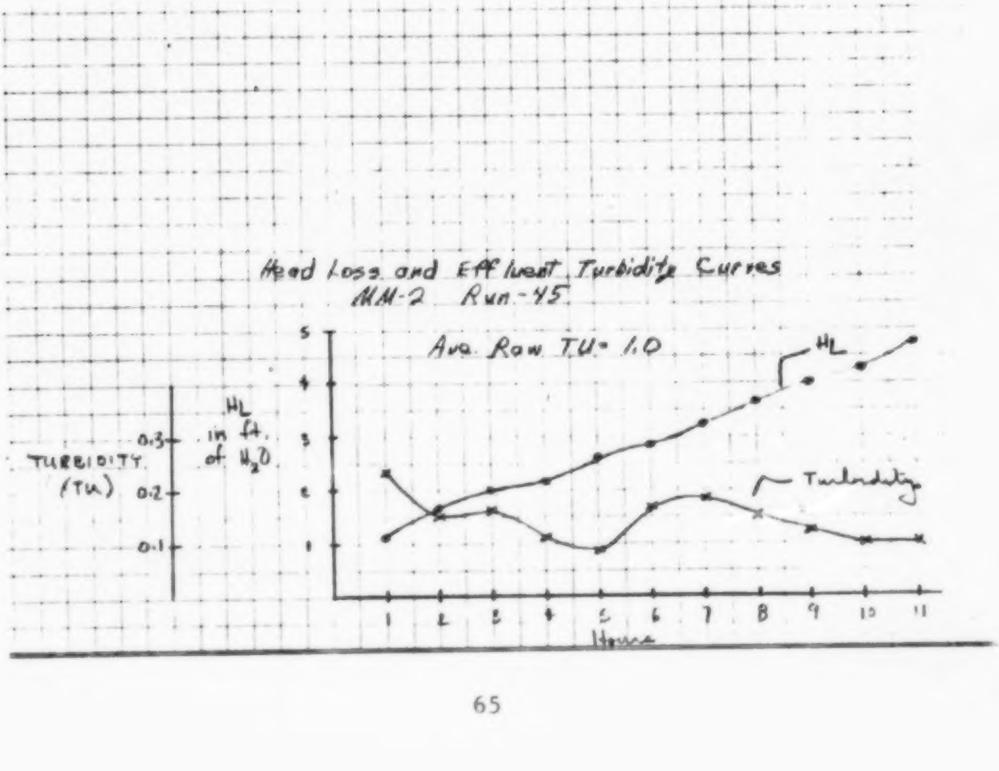


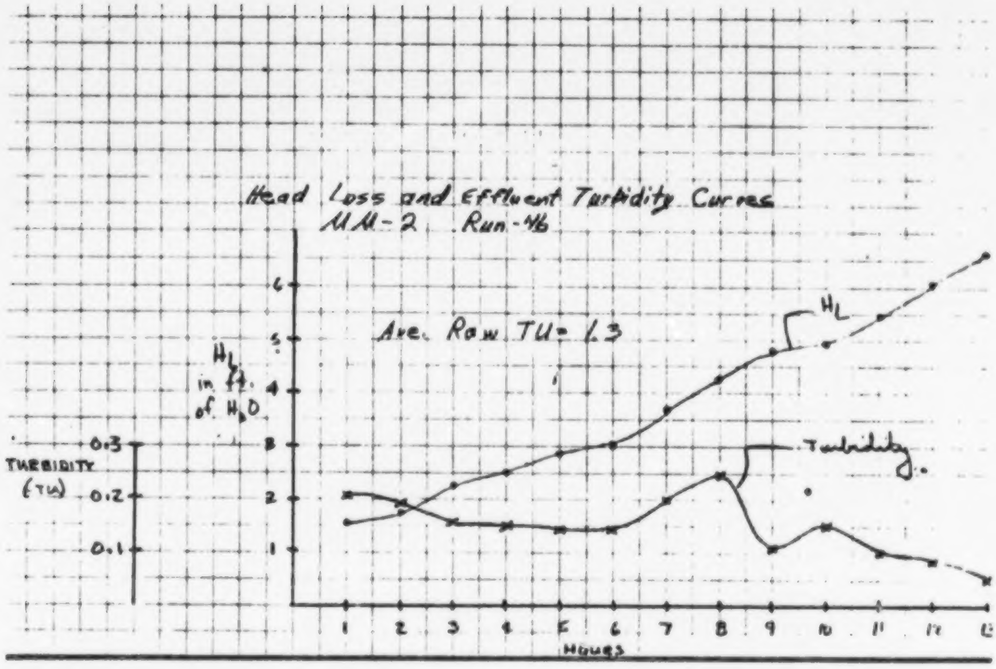
Head Loss and Effluent Turbidity Curves
MM-2 Run-41

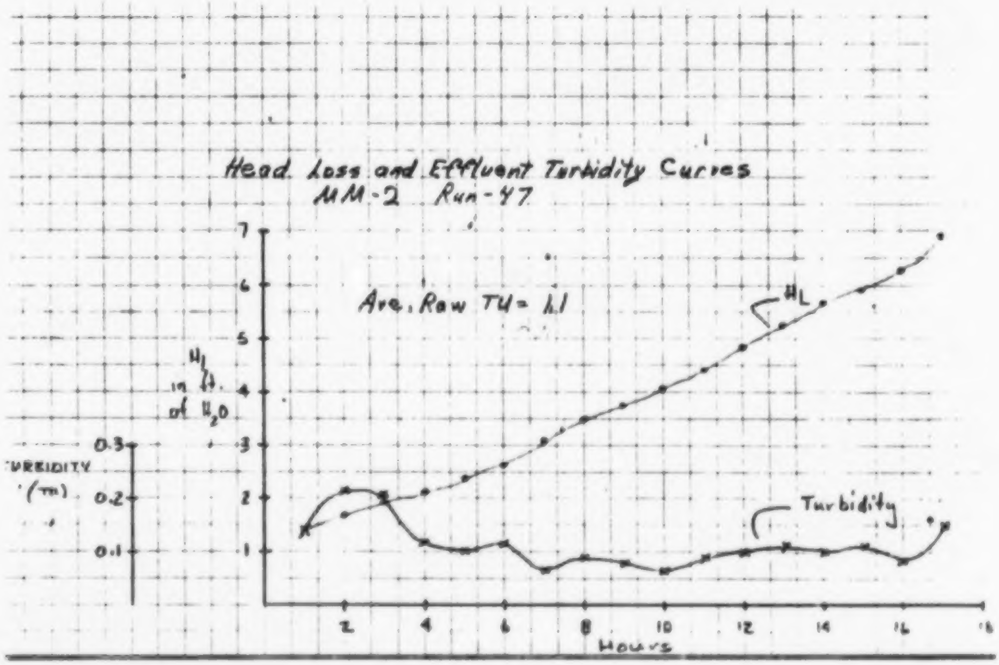

Head Loss and Effluent Turbidity Curves
MM-2 Run-42
Ave. Raw TU = 0.85
HL
Turbidity
Turbidity (TU)
0.0
0.1
0.2
0.3
0.4
0.5
HL ft of H2O
1
2
3
4
5
6
7
0
1
2
3
4
5
6
7
8
9
10
11
12
13
Hours

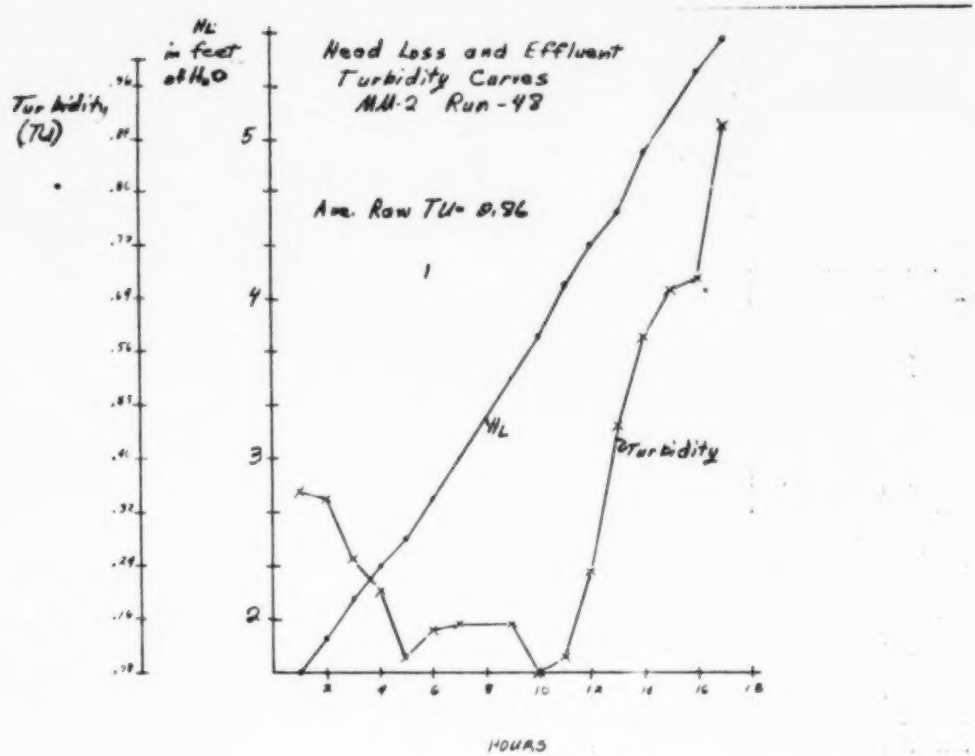

Head Loss and Effluent Turbidity Curves
MM-2 Run-43
Ave. Raw TU = 0.88
HL
Turbidity
HL in ft. of H2O
Turbidity (TU)
0.1
0.2
0.3
1
2
3
4
5
6
2
4
6
8
10
12
14
16
18
Hours

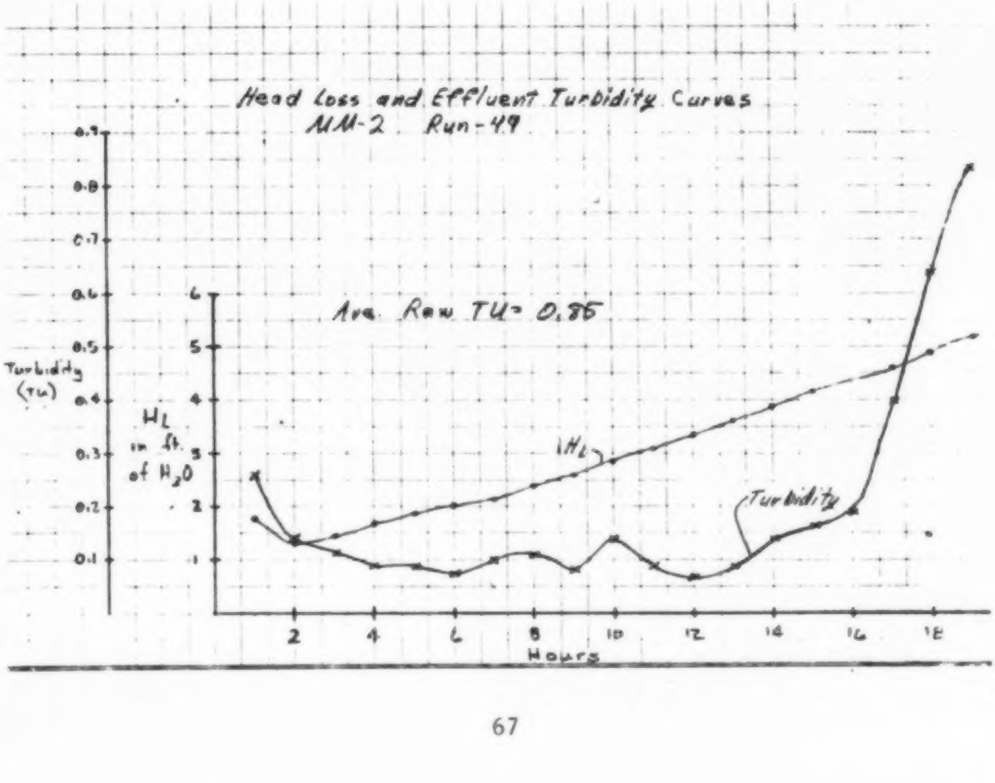

Head Loss and Effluent Turbidity Curves
MM-2 Run-44

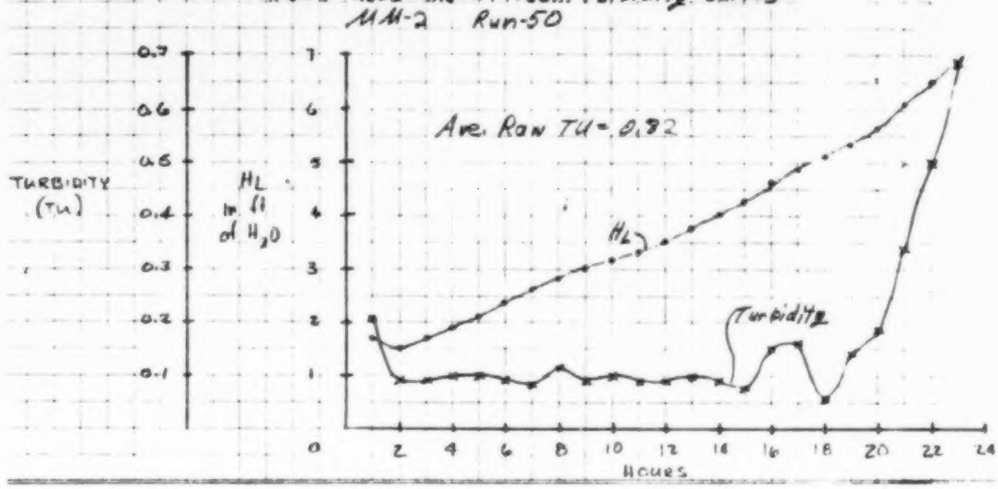

Head Loss and Effluent Turbidity Curves
MM-2 Run-45

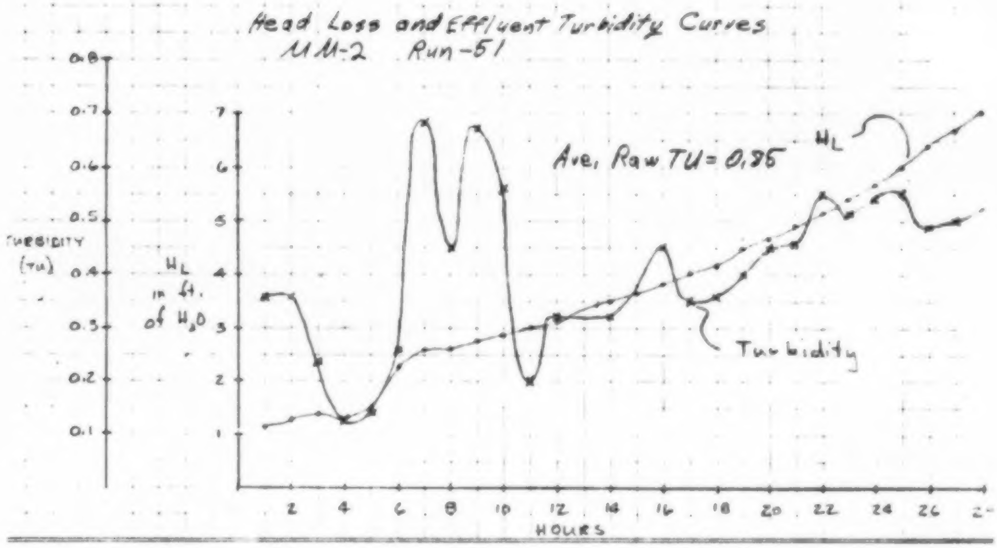

Head Loss and Effluent Turbidity Curves
MM-2 Run-46
Ave. Raw TU= 1.3
H_L
Turbidity
H_L in ft. of H_2O
TURBIDITY (TU)
0.3
0.2
0.1
1
2
3
4
5
6
Hours
1
2
3
4
5
6
7
8
9
10
11
12


Head Loss and Effluent Turbidity Curves
MM-2 Run-47
Ave. Raw TU= 1.1
H_L
Turbidity
H_L in ft. of H_2O
TURBIDITY (TU)
0.3
0.2
0.1
1
2
3
4
5
6
7
Hours
2
4
6
8
10
12
14
16

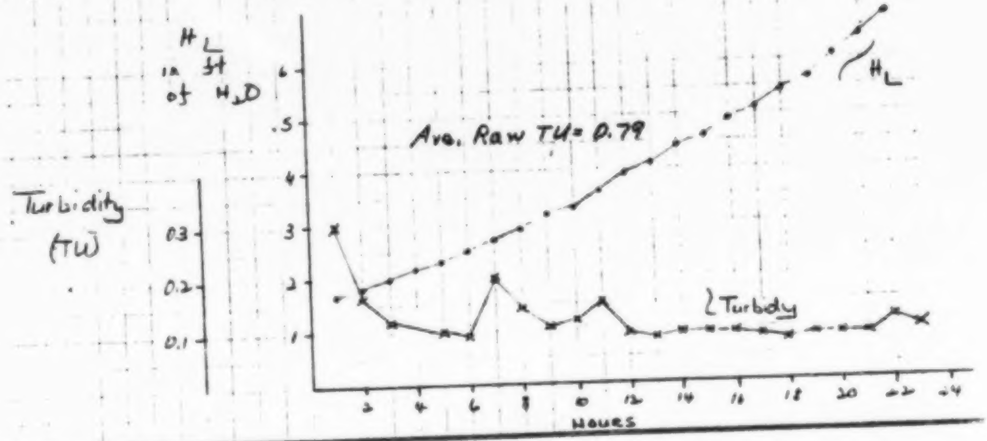

Head Loss and Effluent Turbidity Curves
MM-2 Run-48
Ave. Raw TU= 0.86
Turbidity (TU)
H_L in feet of H_2O
.96
.88
.80
.72
.64
.56
.48
.40
.32
.24
.16
.08
5
4
3
2
H_L
Turbidity
2
4
6
8
10
12
14
16
18
HOURS


Head Loss and Effluent Turbidity Curves
MM-2 Run-49
Ave. Raw TU= 0.85
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
Turbidity (TU)
H_L in ft. of H_2O
6
5
4
3
2
1
H_L
Turbidity
2
4
6
8
10
12
14
16
18
Hours

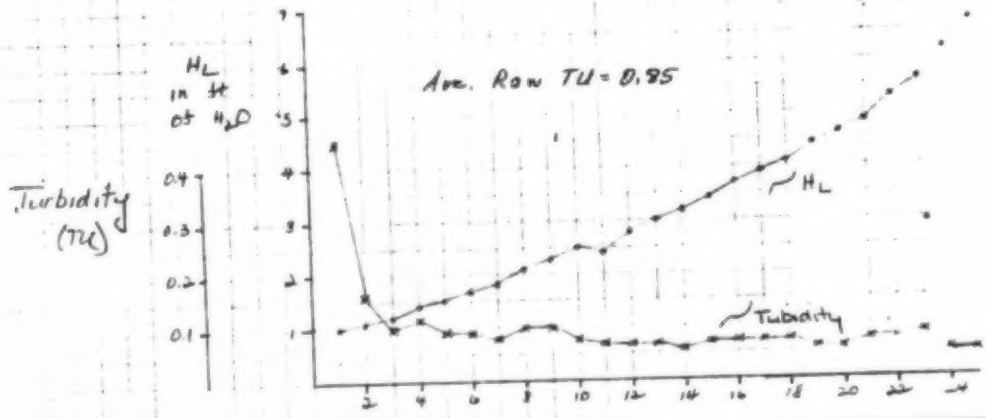

Head Loss and Effluent Turbidity Curves
MM-2 Run-50
TURBIDITY (TU)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
HL in ft of H_2O
7
6
5
4
3
2
1
0
Ave. Raw TU = 0.82
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
HOURS

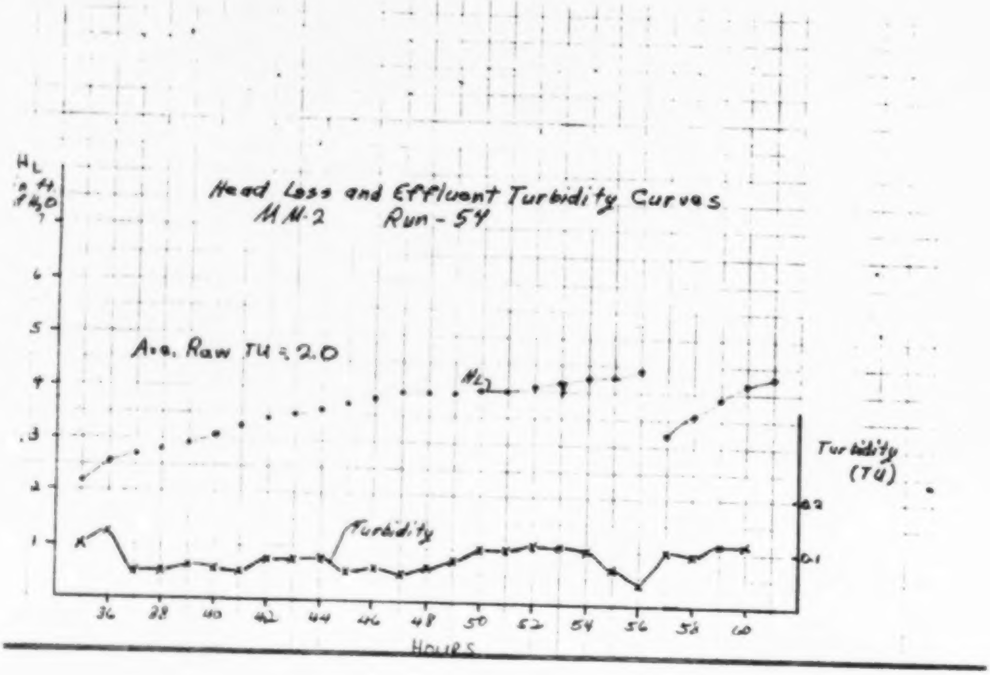

Head Loss and Effluent Turbidity Curves
MM-2 Run-51
TURBIDITY (TU)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
HL in ft. of H_2O
7
6
5
4
3
2
1
Ave. Raw TU = 0.85
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
2-
HOURS

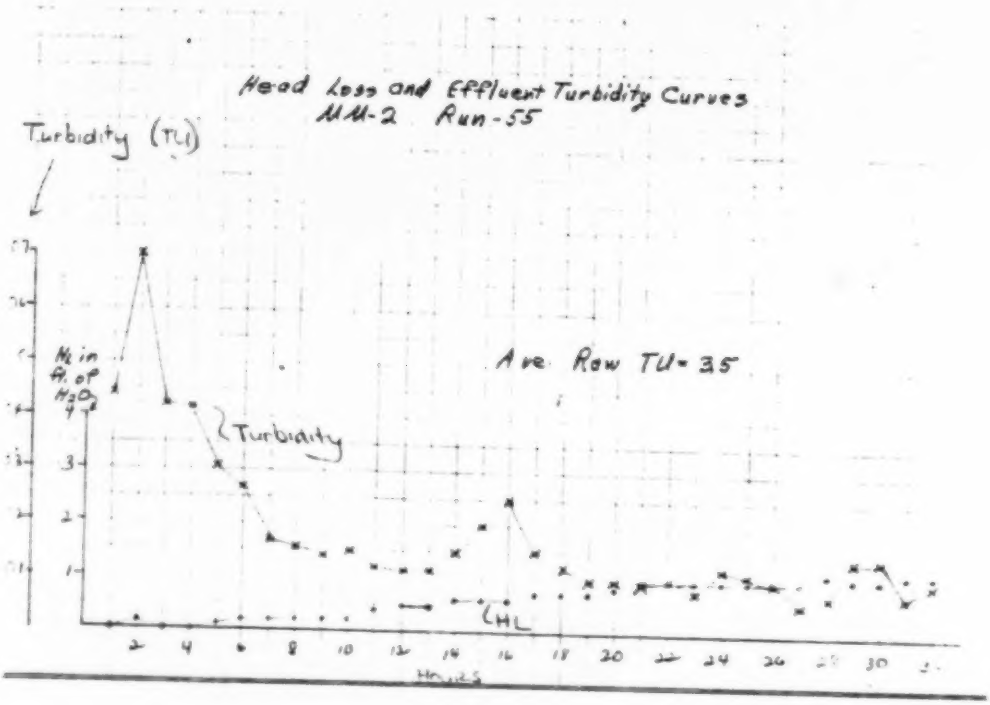
Head Loss and Effluent Turbidity Curves
MM-2 Run-52



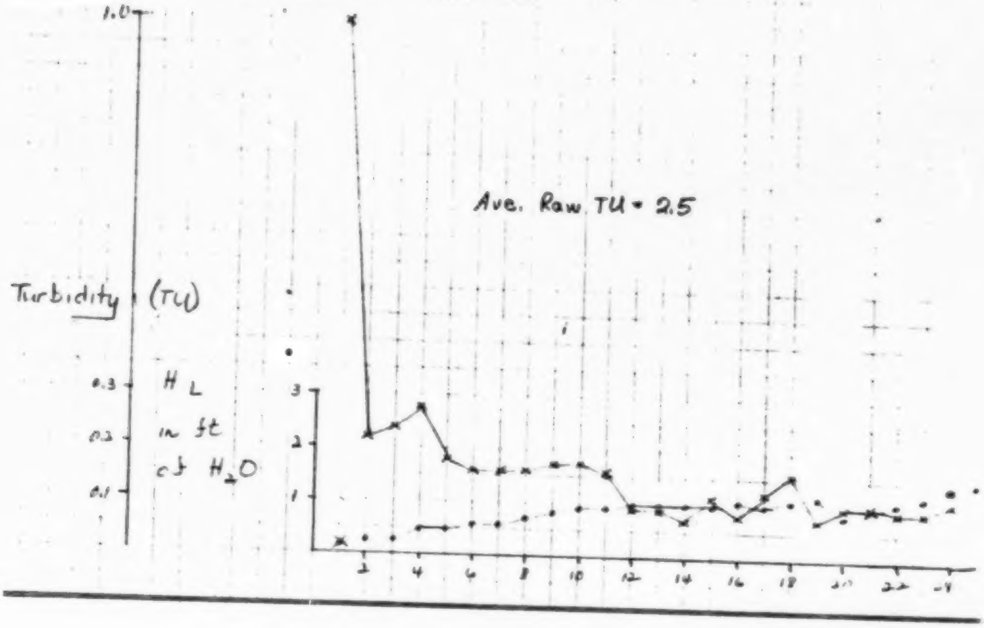
Head Loss and Effluent Turbidity Curves
MM-2 Run 53



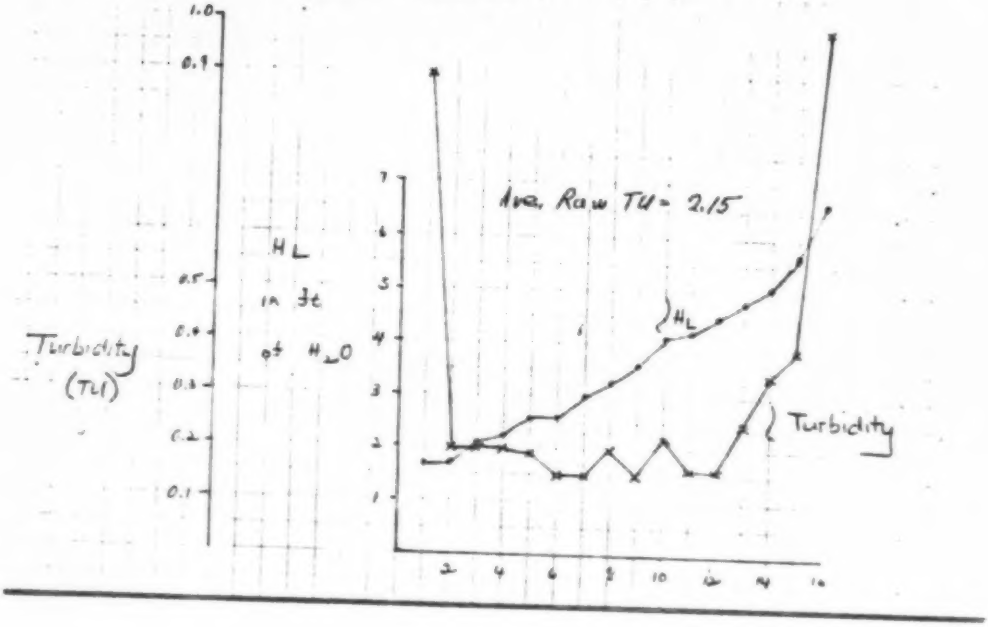

Head Loss and Effluent Turbidity Curves
MM-2 Run-54
HL in ft. of H2O
1
2
3
4
5
6
7
Ave. Raw TU = 2.0
HL
Turbidity
Turbidity (TU)
0.2
0.1
36
38
40
42
44
46
48
50
52
54
56
58
60
Hours

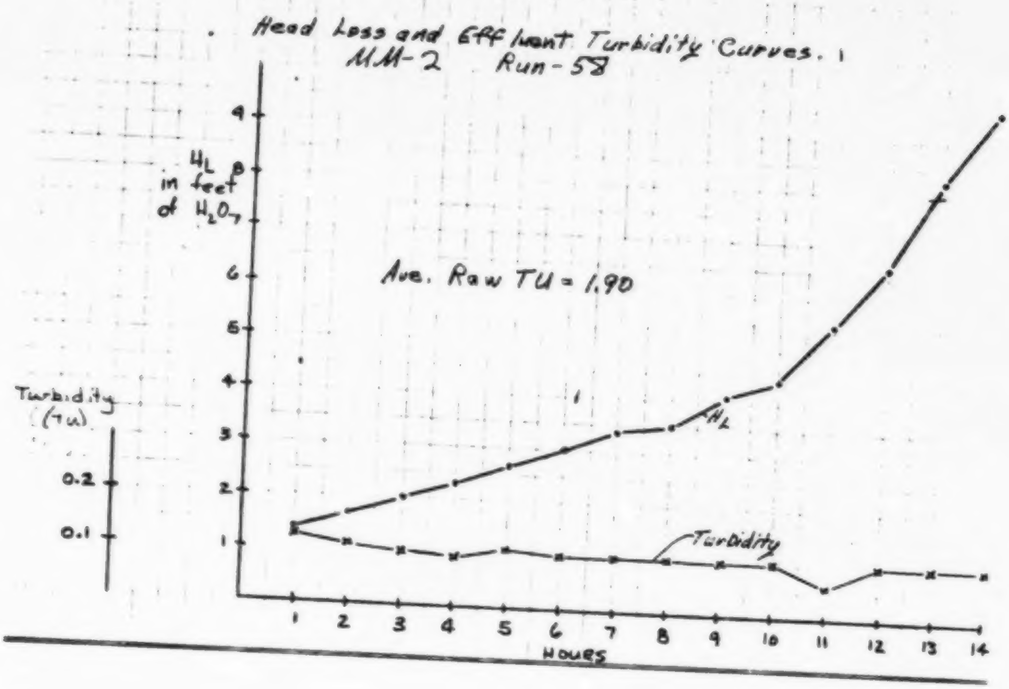

Head Loss and Effluent Turbidity Curves
MM-2 Run-55
Turbidity (TU)
HL in ft. of H2O
1
2
3
4
Ave Raw TU = 35
Turbidity
HL
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
Hours

Head Loss and Effluent Turbidity Curves
MM-2 Run-56

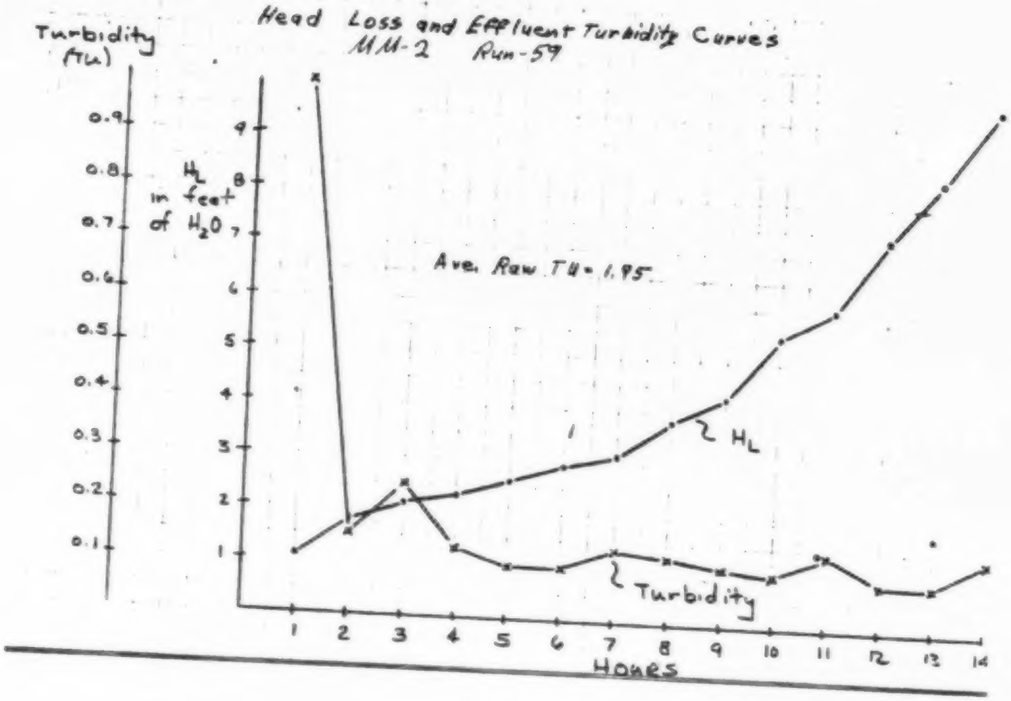


Head Loss and Effluent Turbidity Curves
MM-2 Run-57

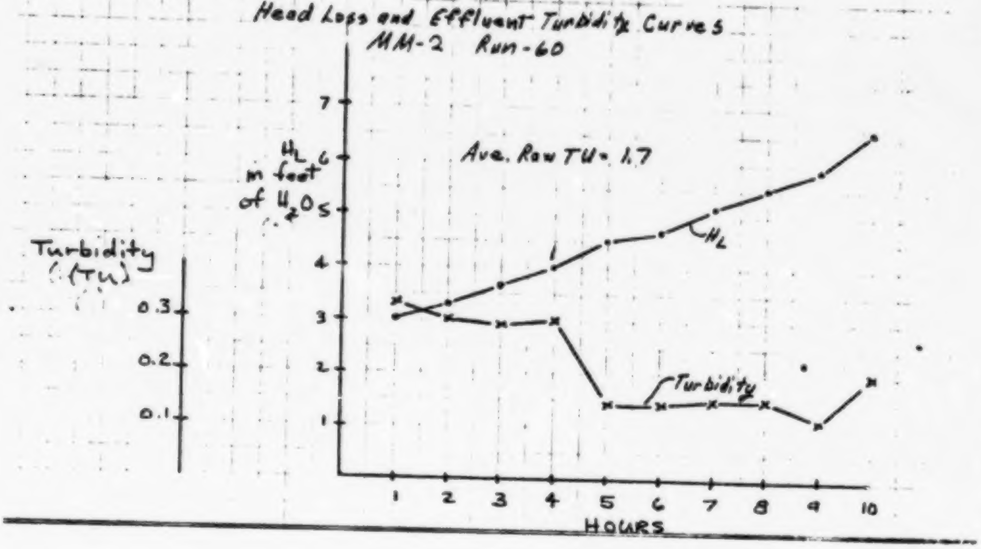


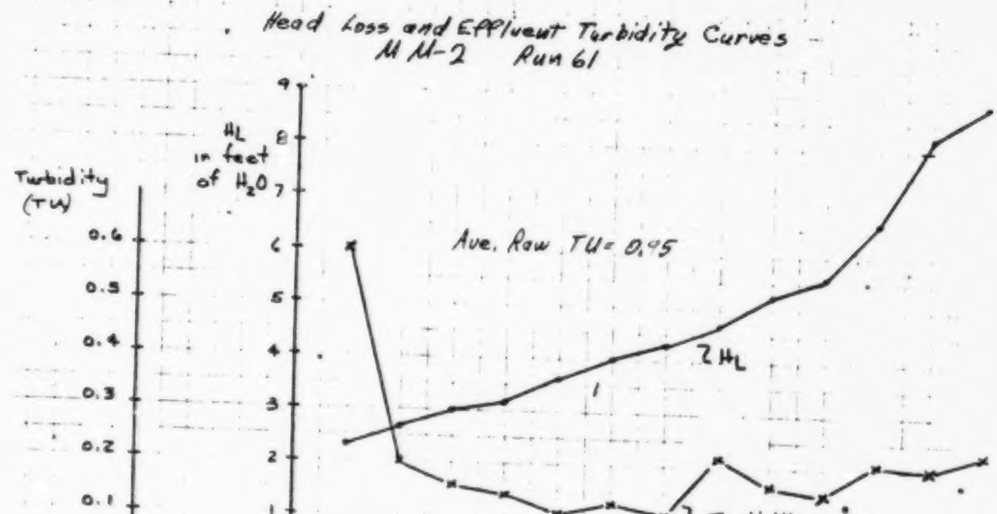


Head Loss and Effluent Turbidity Curves.
MM-2 Run-58

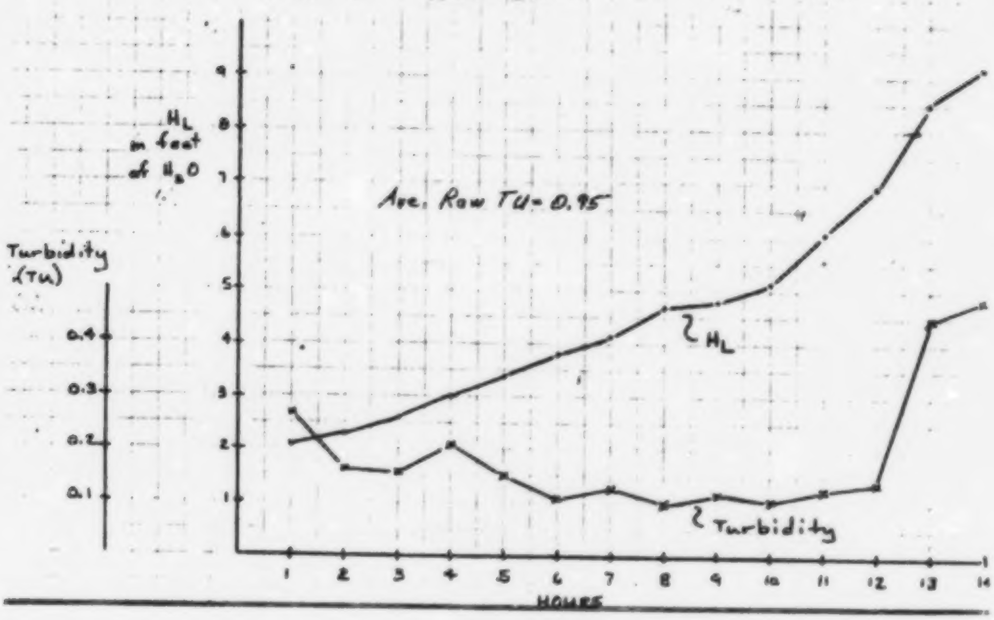


Head Loss and Effluent Turbidity Curves
MM-2 Run-59

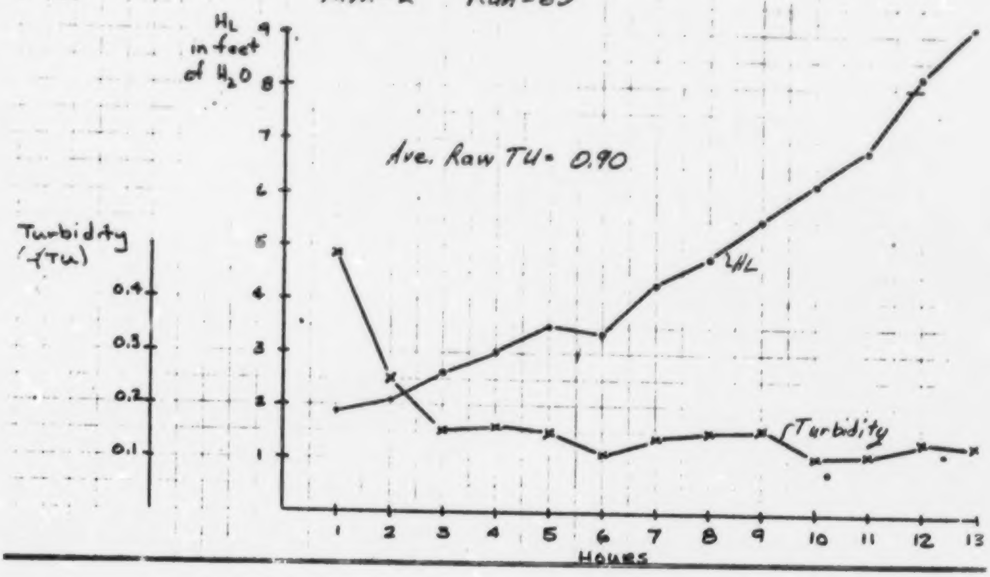

Head Loss and Effluent Turbidity Curves
MM-2 Run-60


Head Loss and Effluent Turbidity Curves
MM-2 Run 61

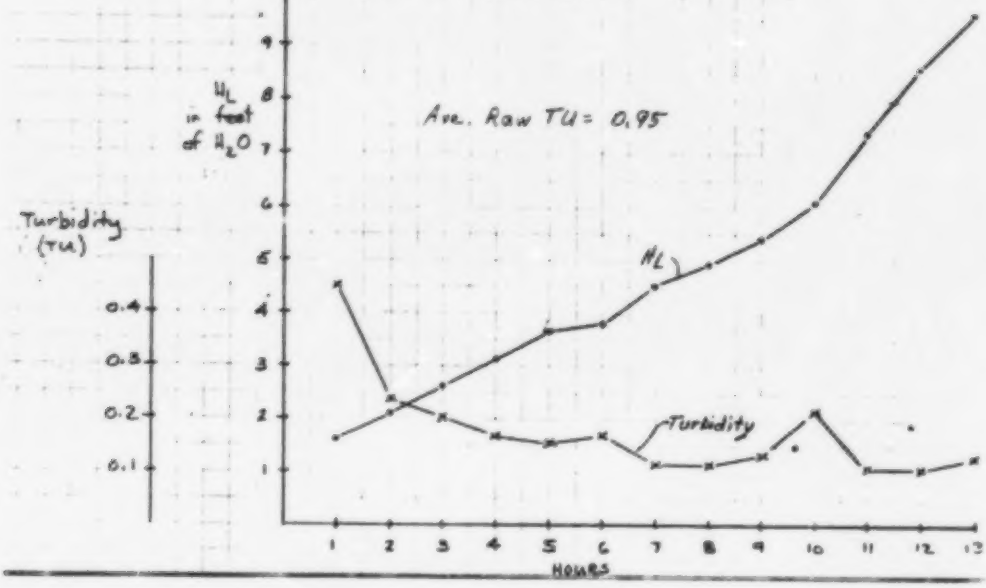
Head Loss and Effluent Turbidity Curves
MM-2 Run-62



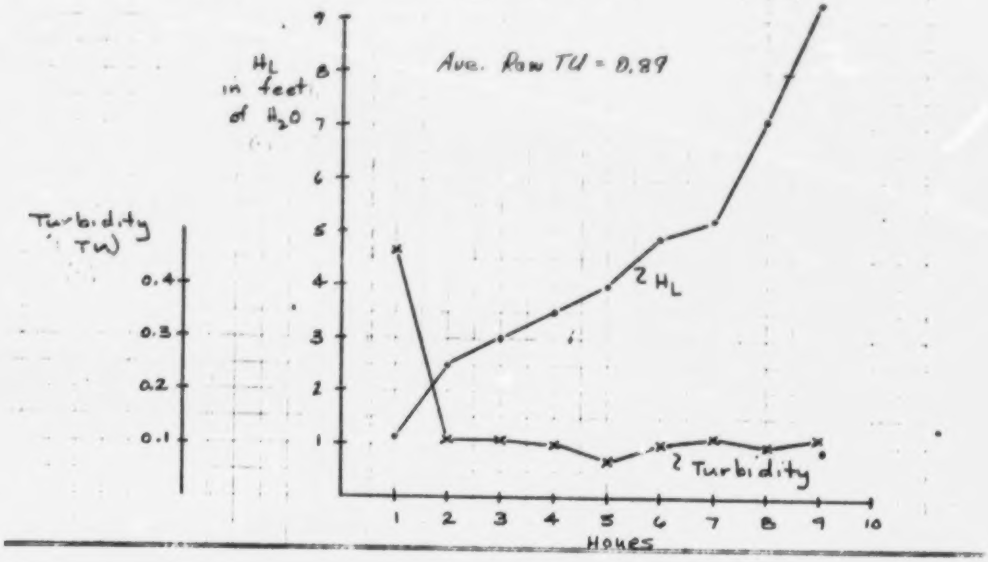
Head Loss and Effluent Turbidity Curves
MM-2 Run-63



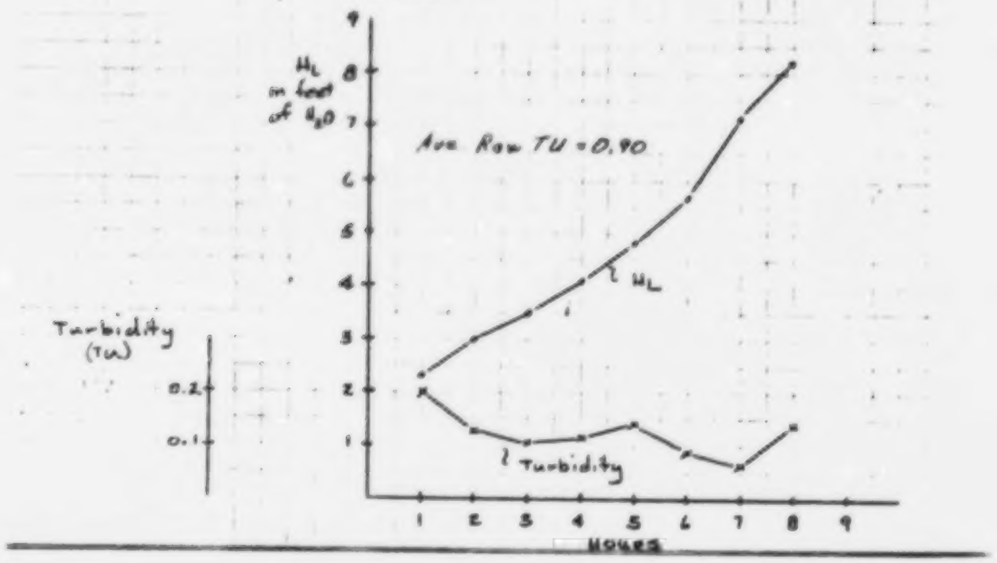
Head Loss and Effluent Turbidity Curves
MM-2 Run-64



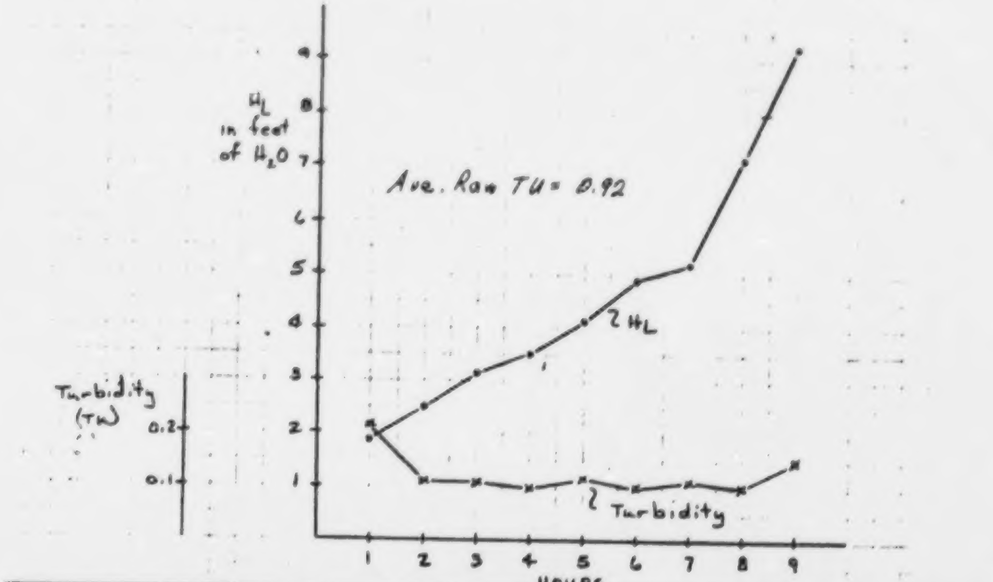
Head Loss and Effluent Turbidity Curves
UM-2 Run-65



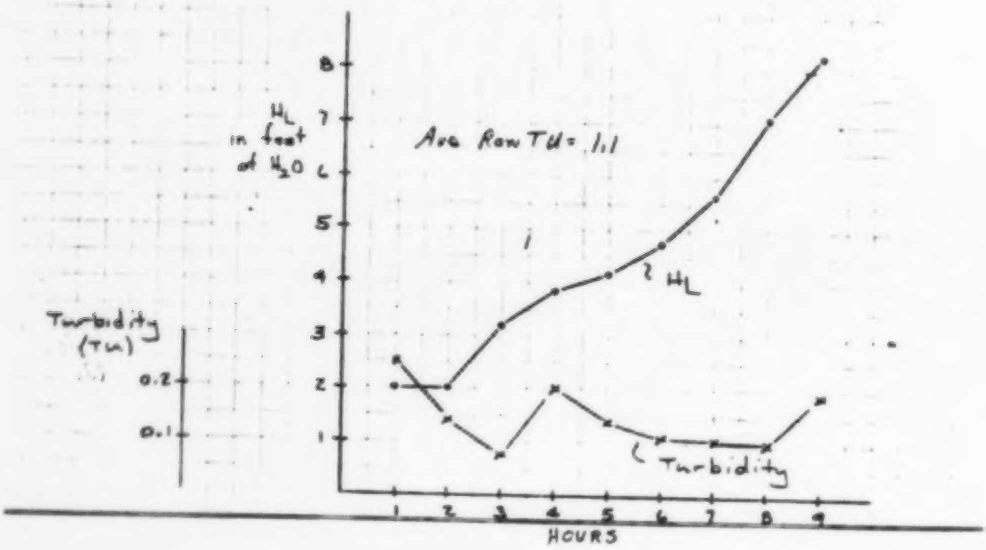
Head Loss and Effluent Turbidity Curves
MM-2 Run66



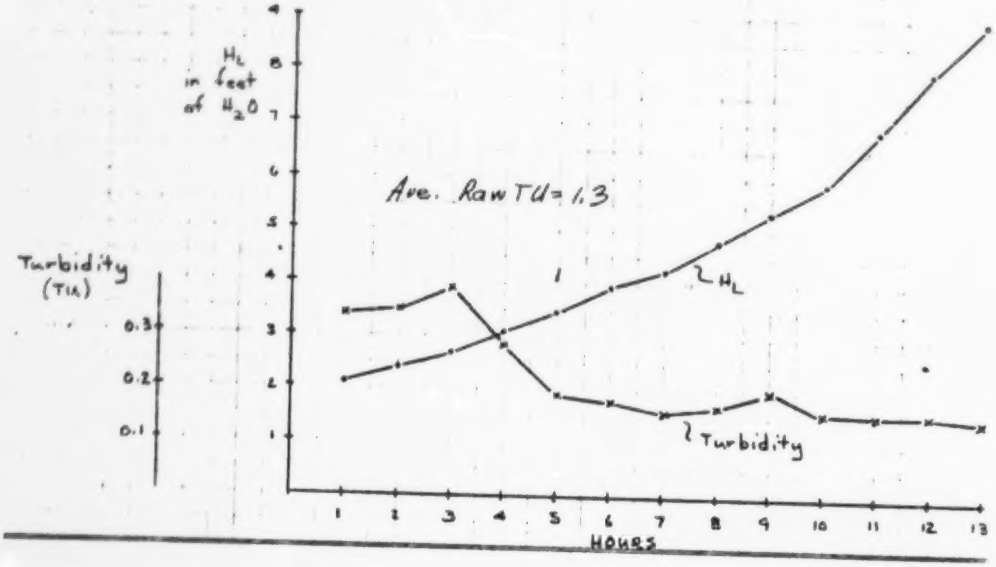
Head Loss and Effluent Turbidity Curves
MM-2 Run-67

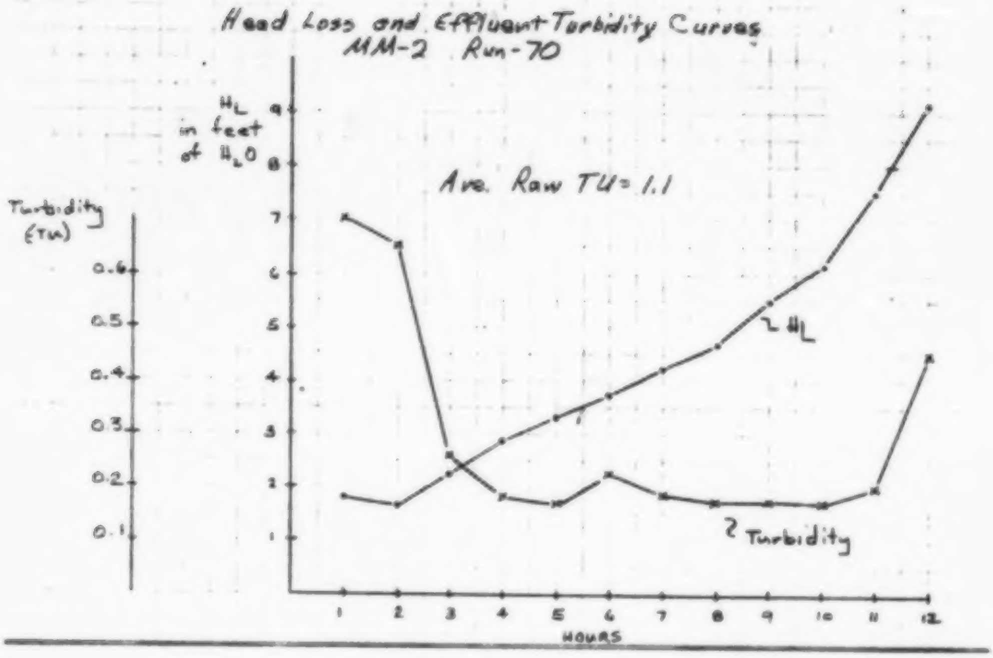


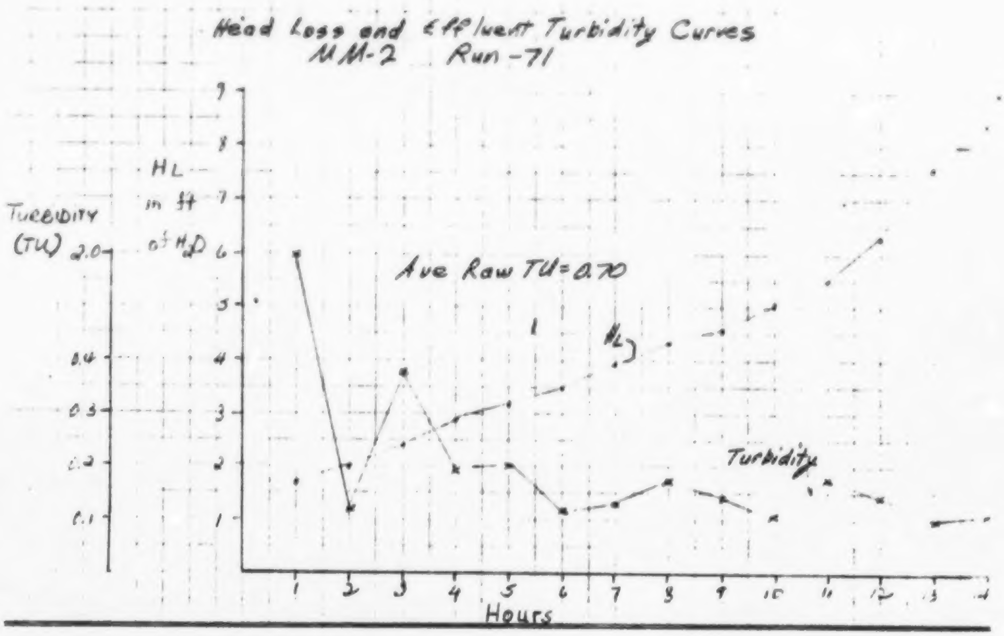
Head Loss and Effluent Turbidity Curves
MM-2 Run-68



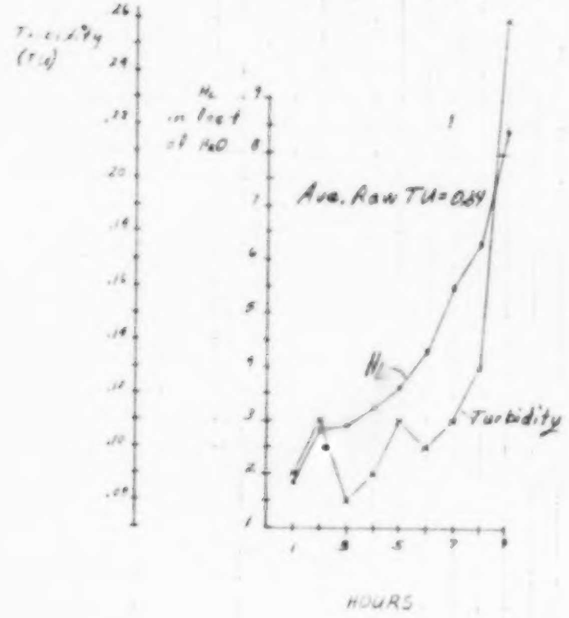
Head Loss and Effluent Turbidity Curves
MM-2 Run-69



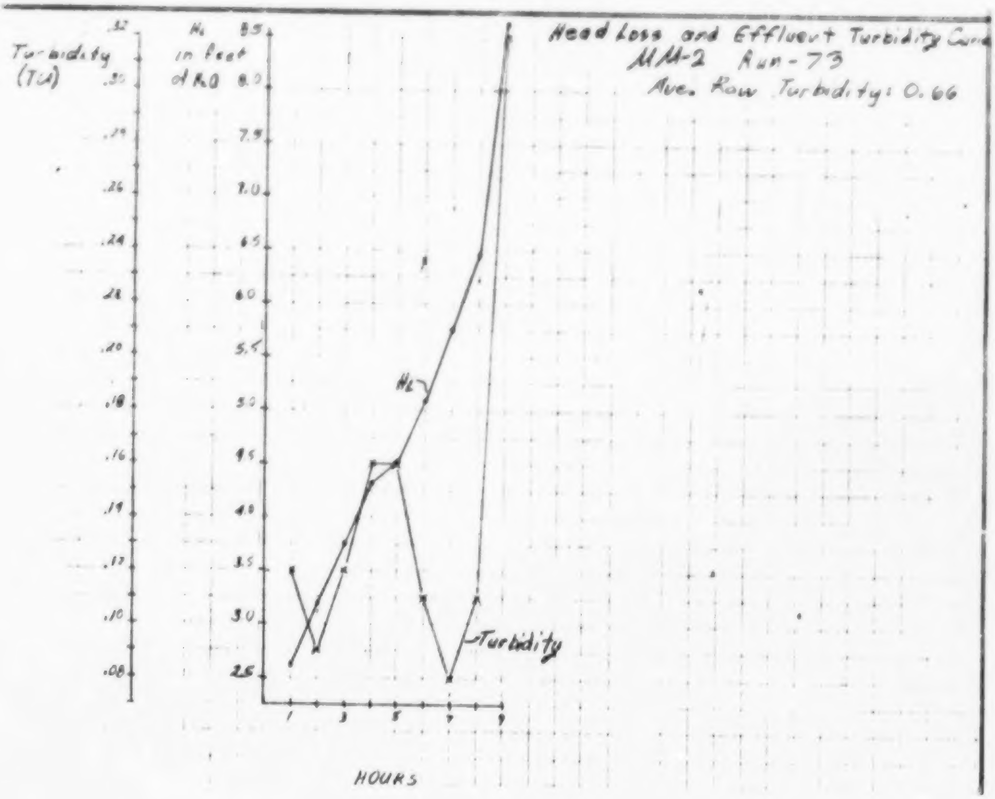

Head Loss and Effluent Turbidity Curves
MM-2 Run-70
H_L in feet of H_2O
Turbidity (TU)
Ave. Raw TU= 1.1
H_L
Turbidity
0.1
0.2
0.3
0.4
0.5
0.6
1
2
3
4
5
6
7
8
9
10
11
12
HOURS

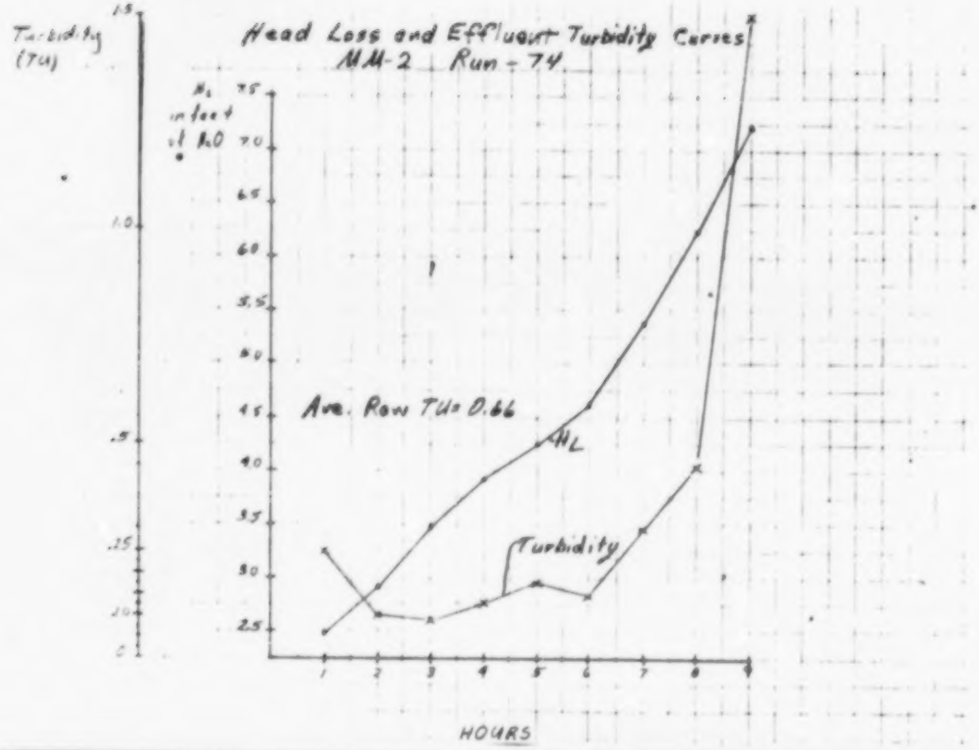

Head Loss and Effluent Turbidity Curves
MM-2 Run-71
H_L in ft of H_2O
TURBIDITY (TU)
Ave Raw TU= 0.70
H_L
Turbidity
0.1
0.2
0.3
0.4
2.0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Hours

Head Loss and Effluent Turbidity Curves
MM-2 Run-71

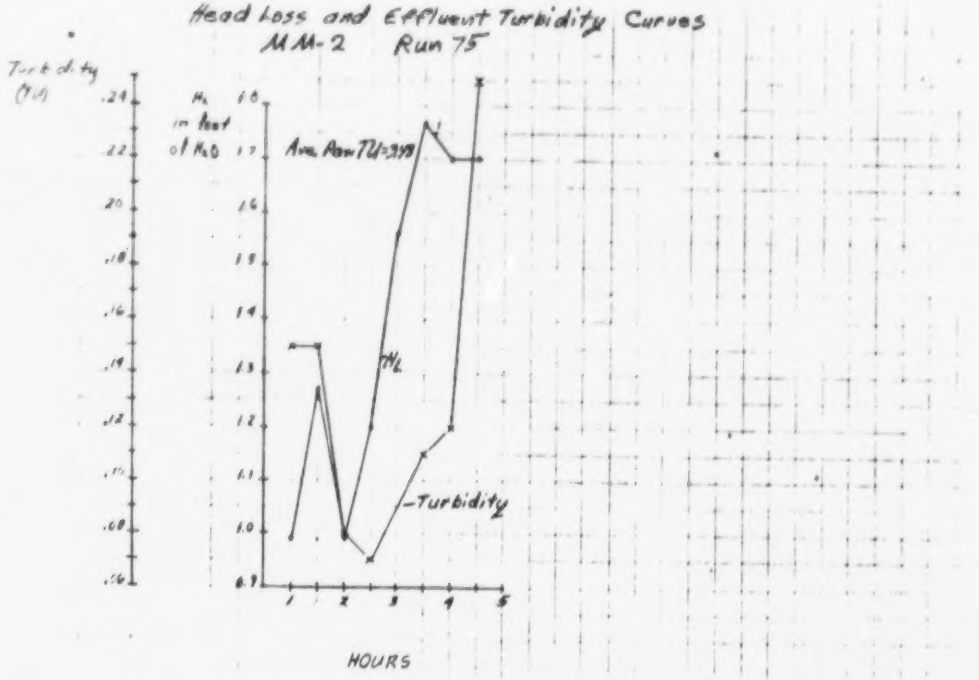


Head Loss and Effluent Turbidity Curv
MM-2 Run-73
Ave. Raw Turbidity: 0.66

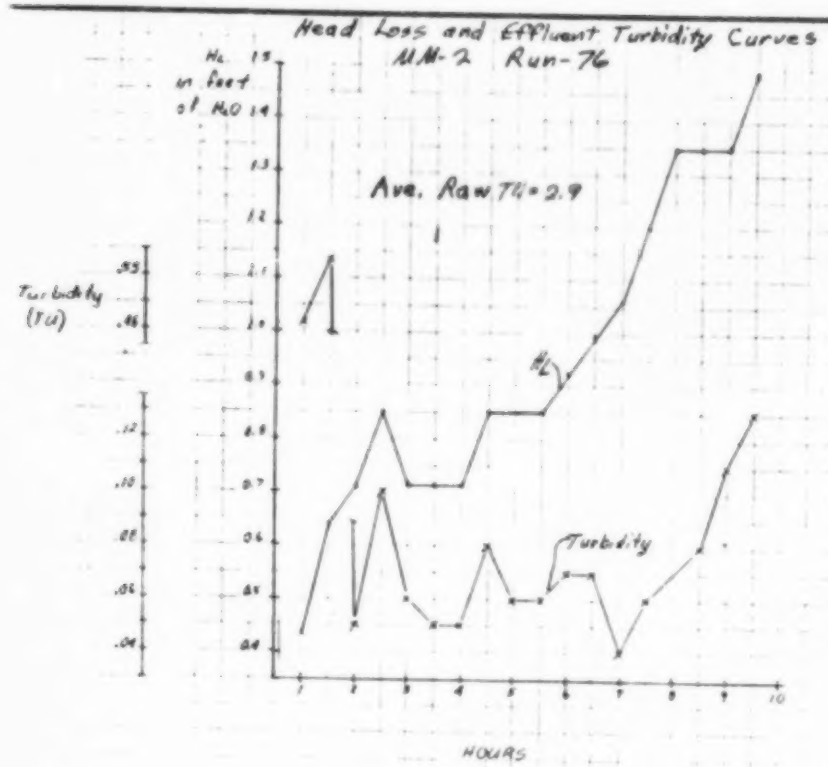




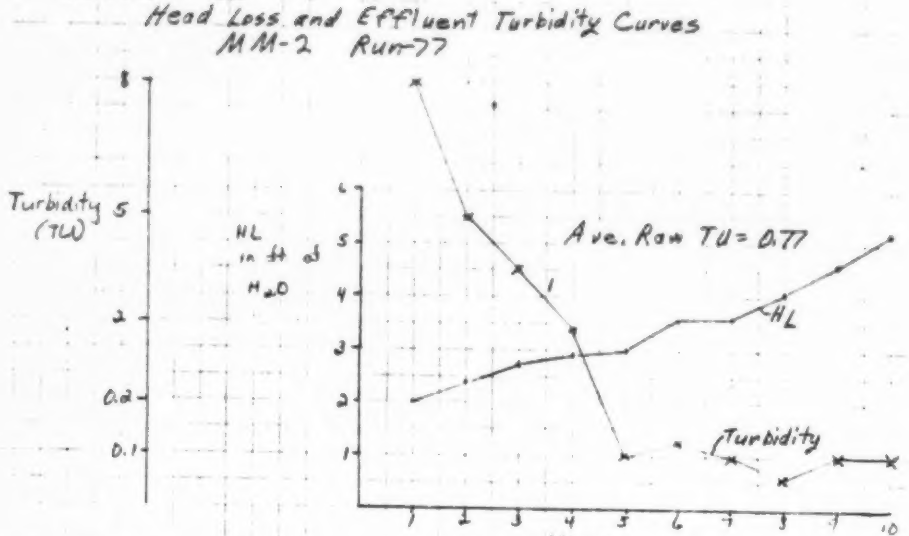
Head Loss and Effluent Turbidity Curves
MM-2 Run - 74



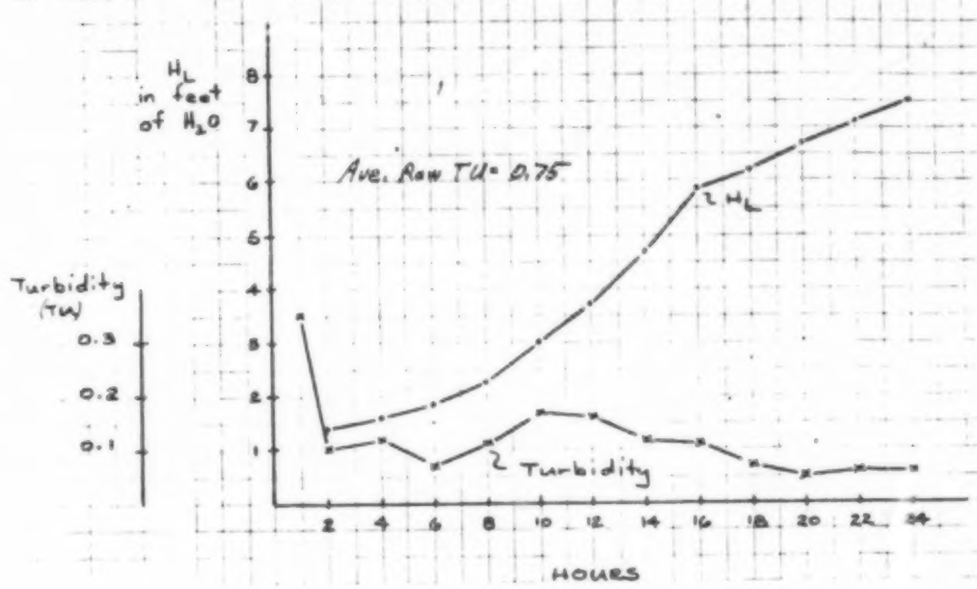
Head Loss and Effluent Turbidity Curves
MM-2 Run 75



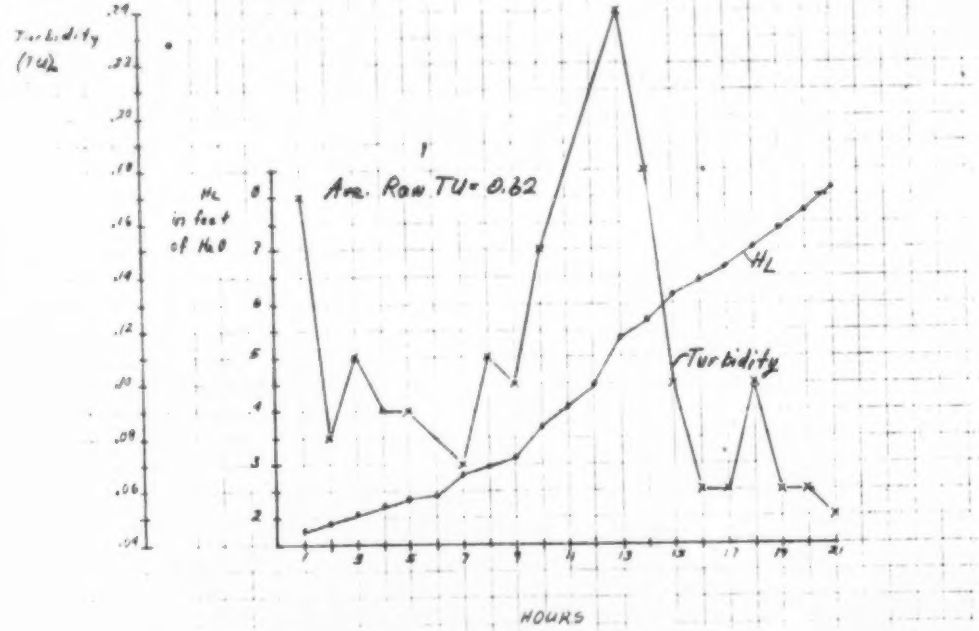
Head Loss and Effluent Turbidity Curves
MM-2 Run-76



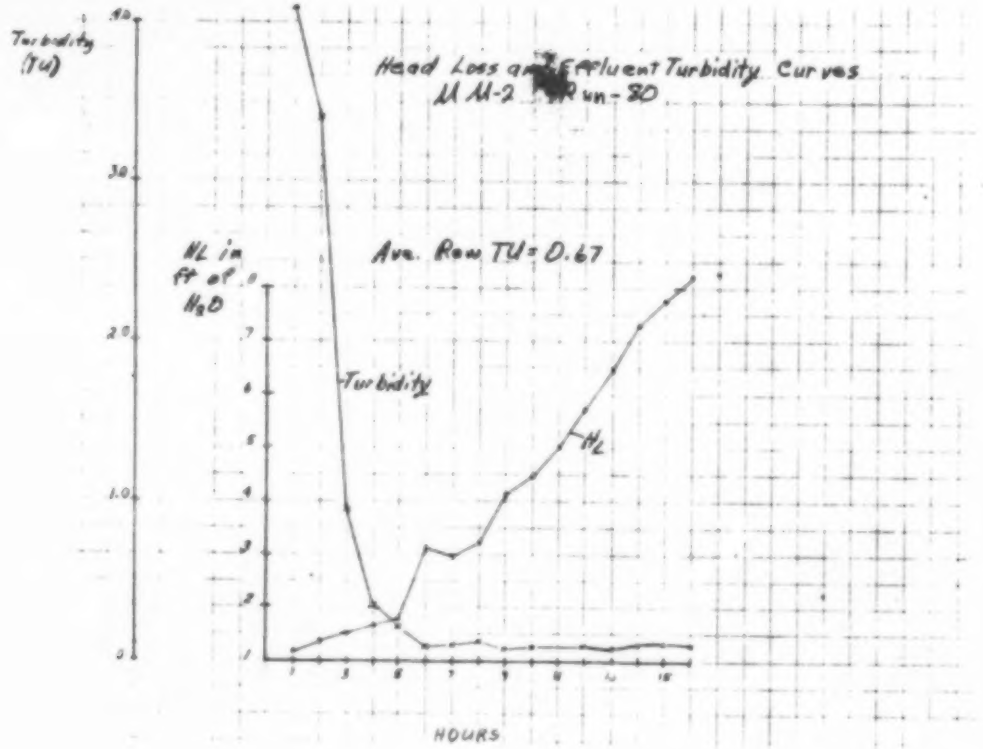
Head Loss and Effluent Turbidity Curves
MM-2 Run-77



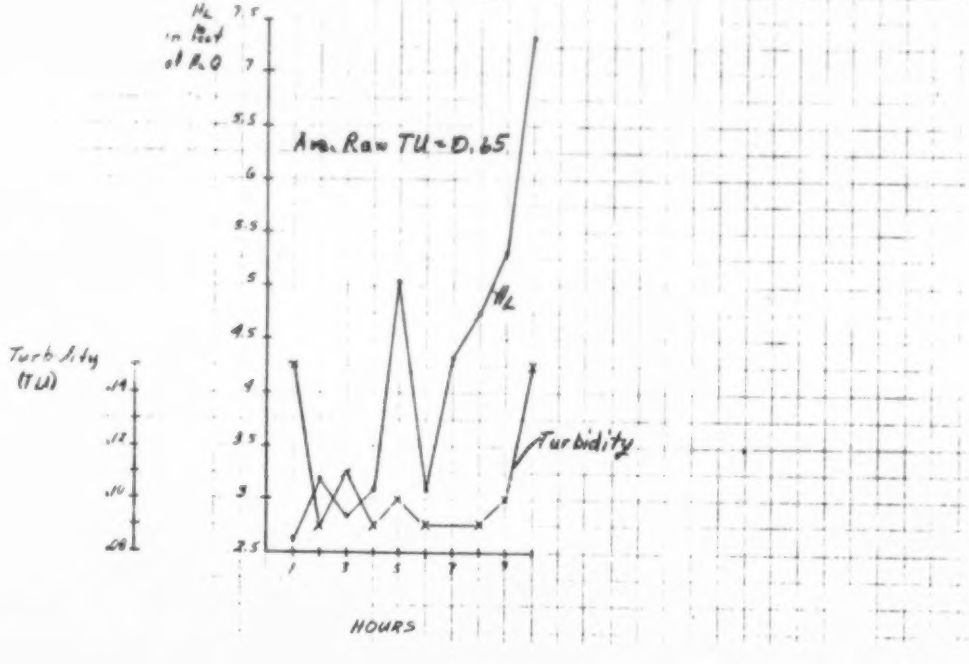
Head Loss and Effluent Turbidity Curves
MM-2 Run-78



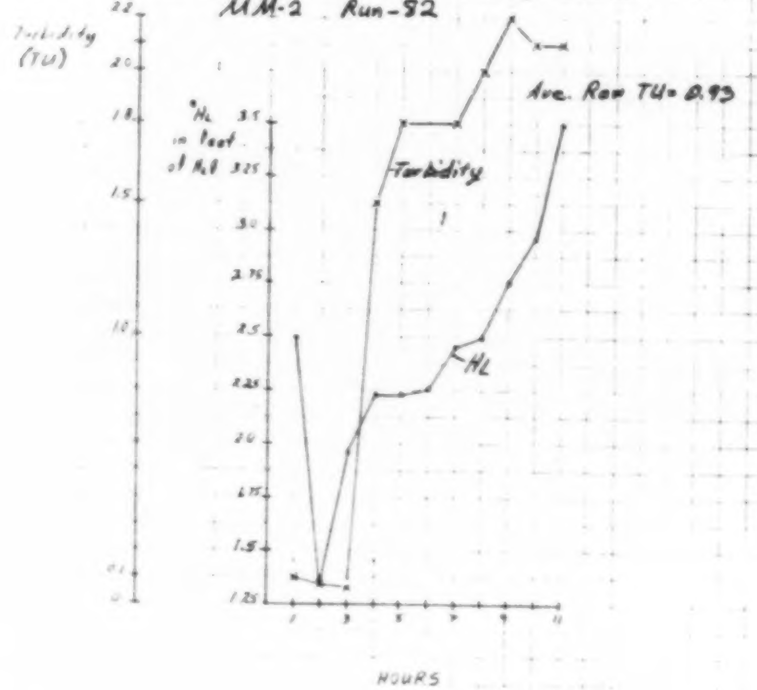
Head Loss and Effluent Turbidity Curves
MM-2 Run-79


Head Loss and Effluent Turbidity Curves
MM-2 Run-80

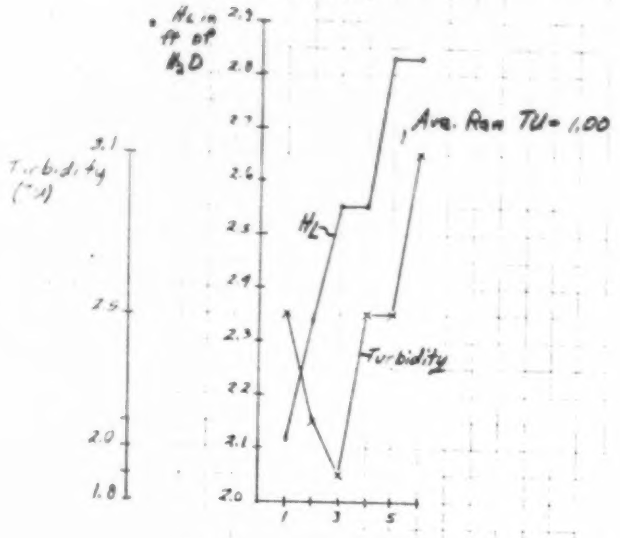
Head Loss and Effluent Turbidity Curves
MM-2 Run-81

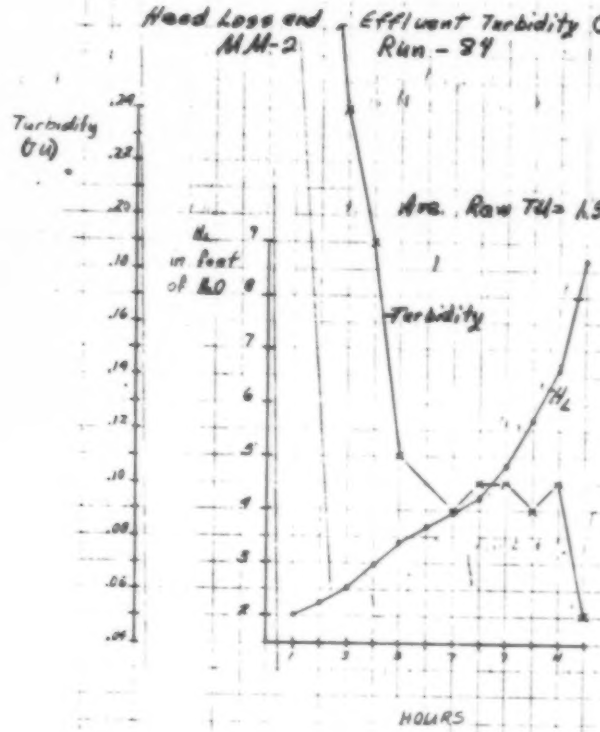


Head Loss and Effluent Turbidity Curves
MM-2 Run-82

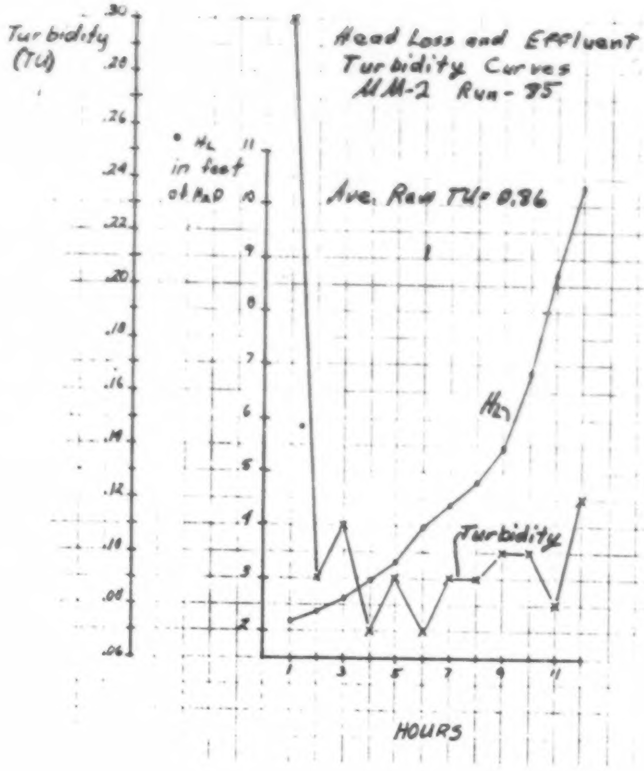


Head Loss and Effluent Turbidity Curves
MM-2 Run-83



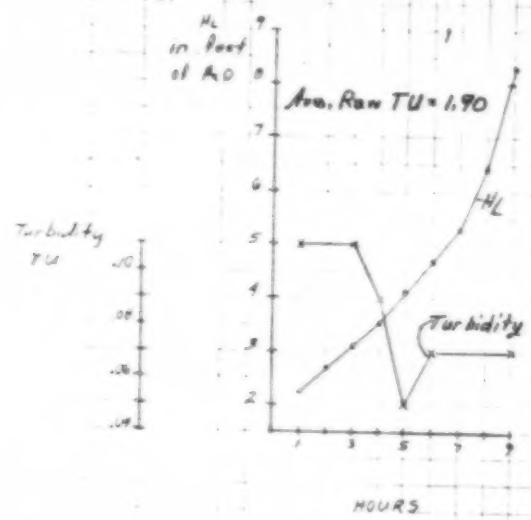


Head Loss and Effluent Turbidity Curves
MM-2 Run - 84

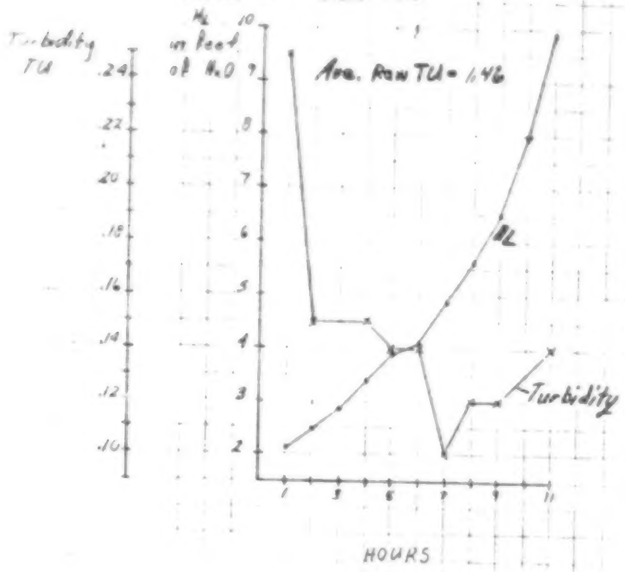


Head Loss and Effluent Turbidity Curves
MM-2 Run - 85

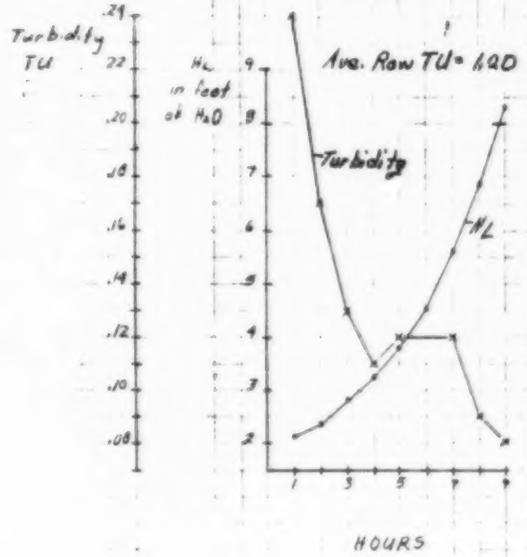
Head Loss and Effluent Turbidity Curves
MM-2 Run-86



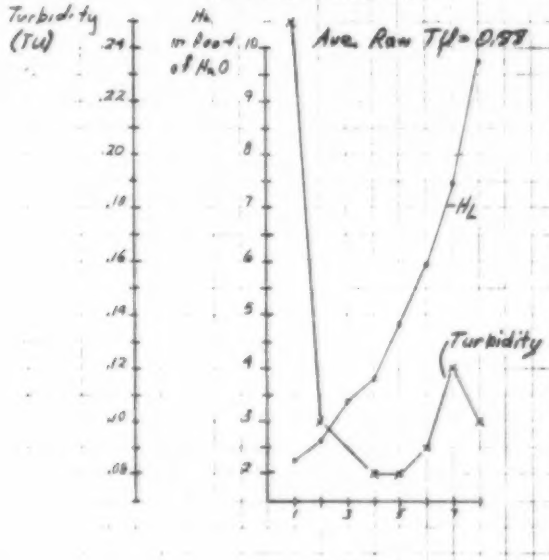
Head Loss and Effluent Turbidity Curves
MM-2 Run-87

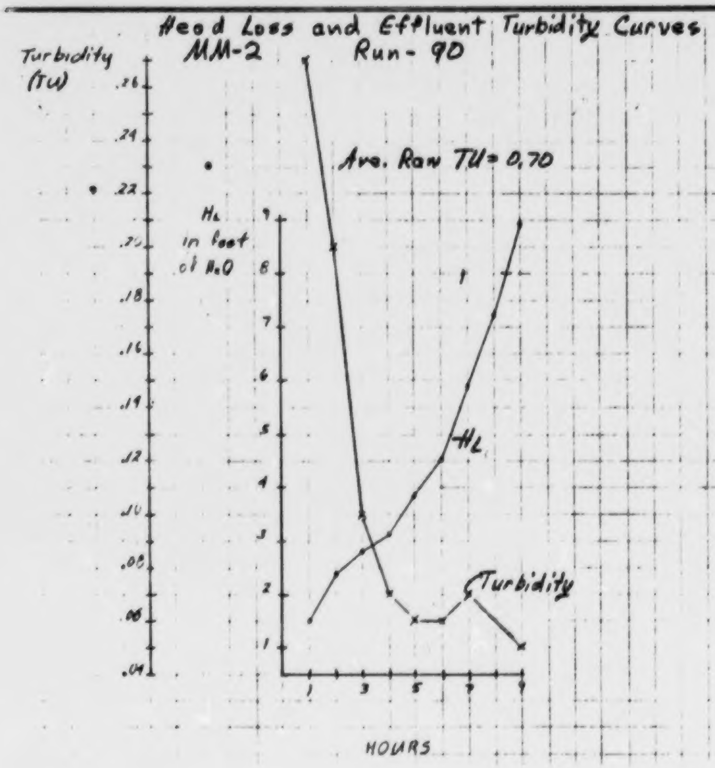


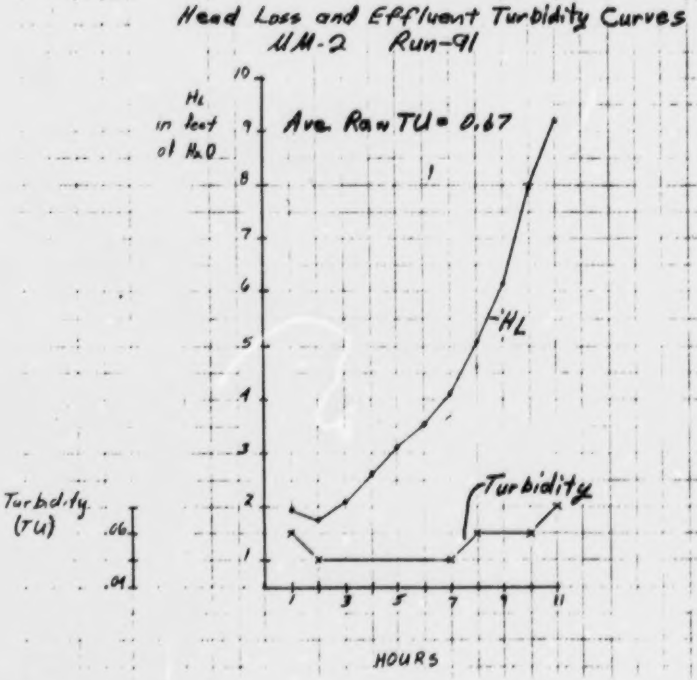
Head Loss and Effluent Turbidity Curves
MM-2 Run-58



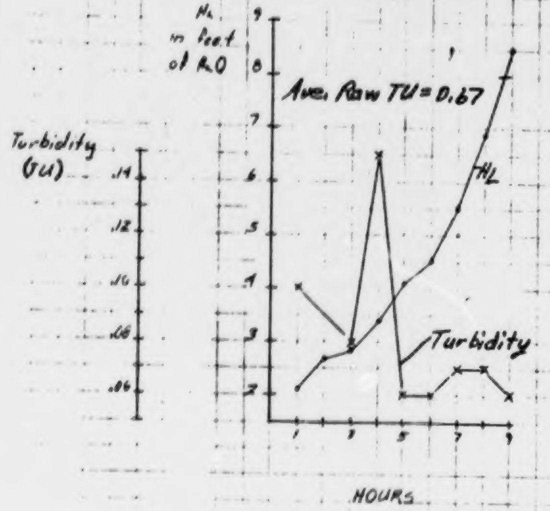
Head Loss and Effluent Turbidity Curves
MM-2 Run-89



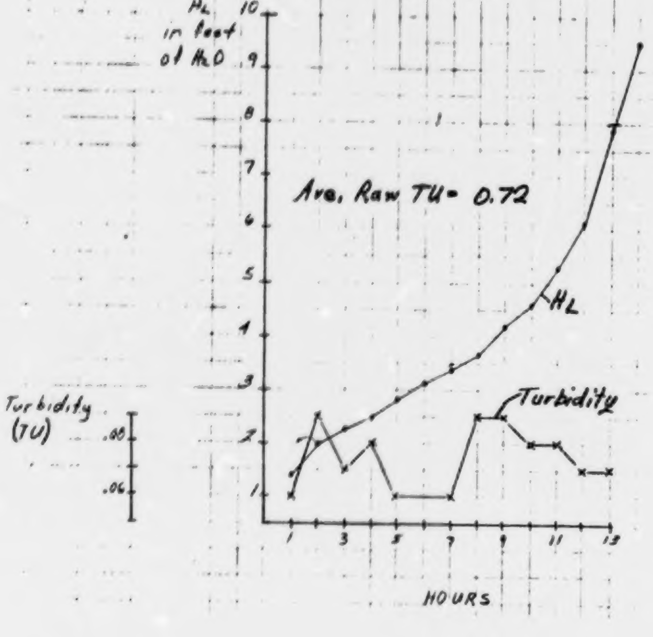

Head Loss and Effluent Turbidity Curves
MM-2 Run- 90

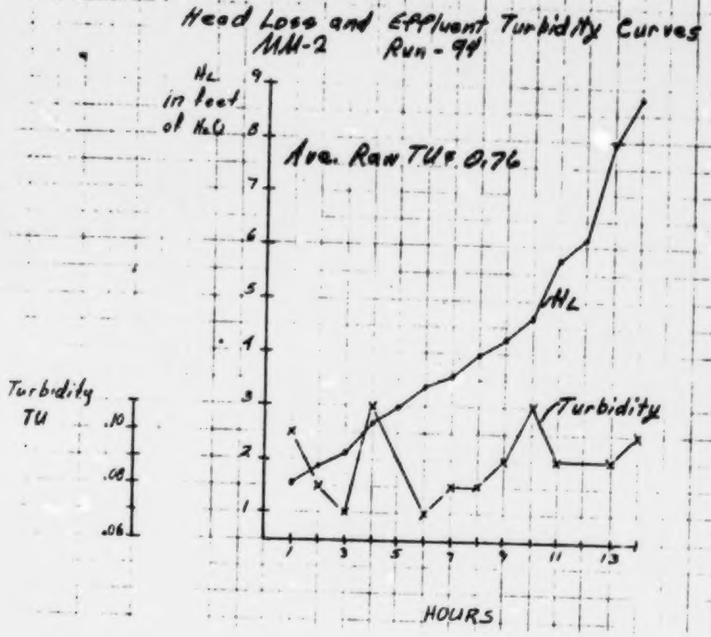

Head Loss and Effluent Turbidity Curves
MM-2 Run-91

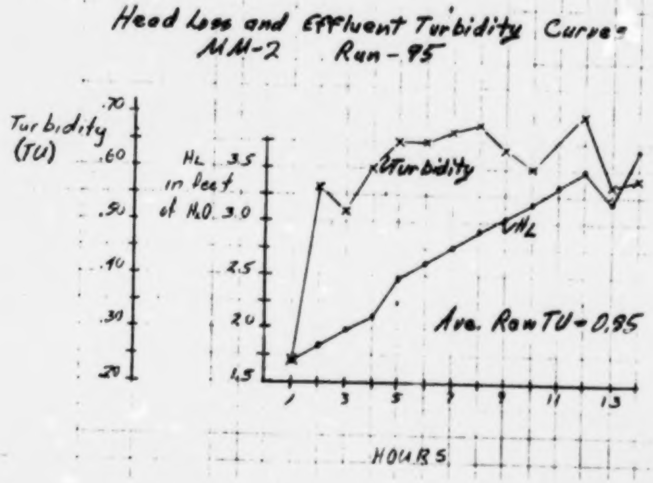
Head Loss and Effluent Turbidity Curves
MM-2 Run-92



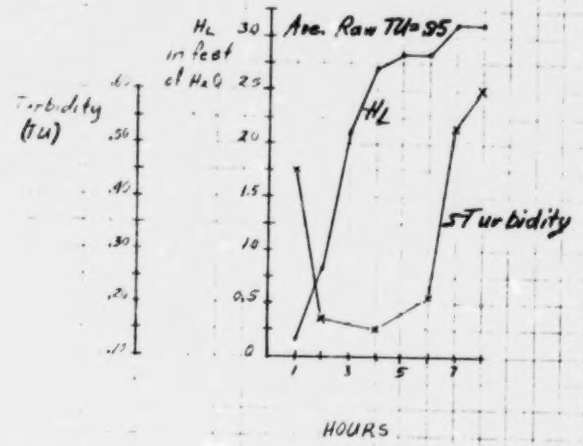
Head Loss and Effluent Turbidity Curves
MM-2 Run-93



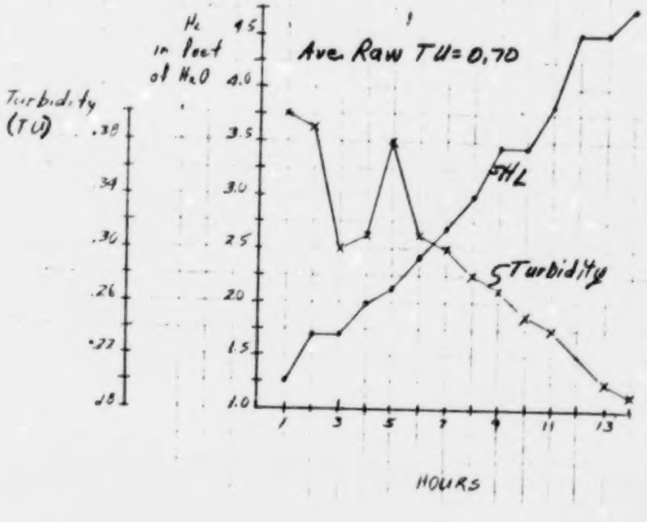

Head Loss and Effluent Turbidity Curves
MM-2 Run-94
HL in feet of H2O
9
8
7
6
5
4
3
2
1
Ave. Raw TU = 0.76
HL
Turbidity TU
.10
.08
.06
Turbidity
1
3
5
7
9
11
13
HOURS


Head Loss and Effluent Turbidity Curves
MM-2 Run-95
Turbidity (TU)
.70
.60
.50
.40
.30
.20
HL in feet of H2O
3.5
3.0
2.5
2.0
1.5
Turbidity
HL
Ave. Raw TU = 0.85
1
3
5
7
9
11
13
HOURS

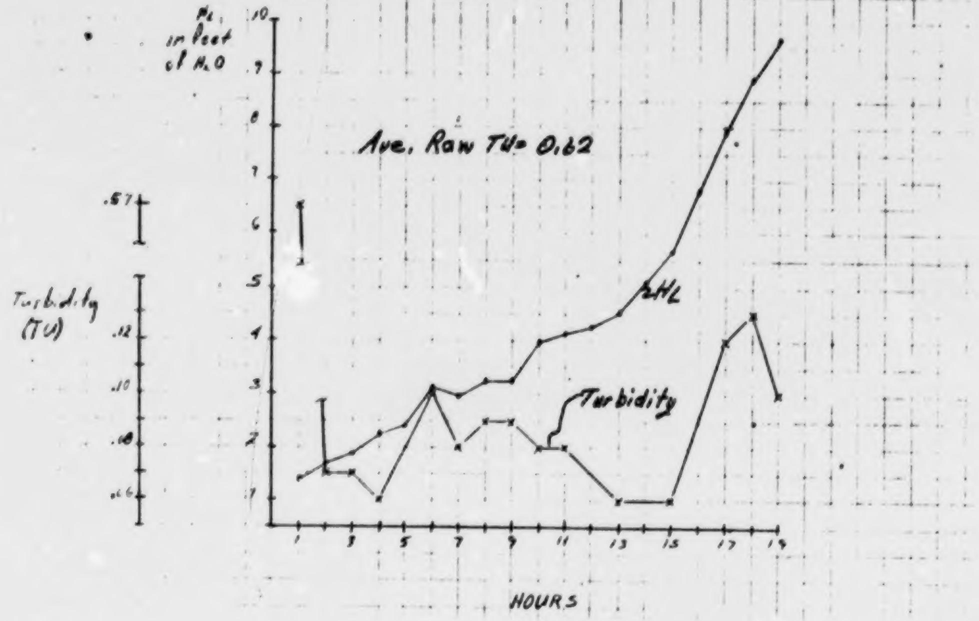
Head Loss and Effluent Turbidity Curves
MM-2 Run-96



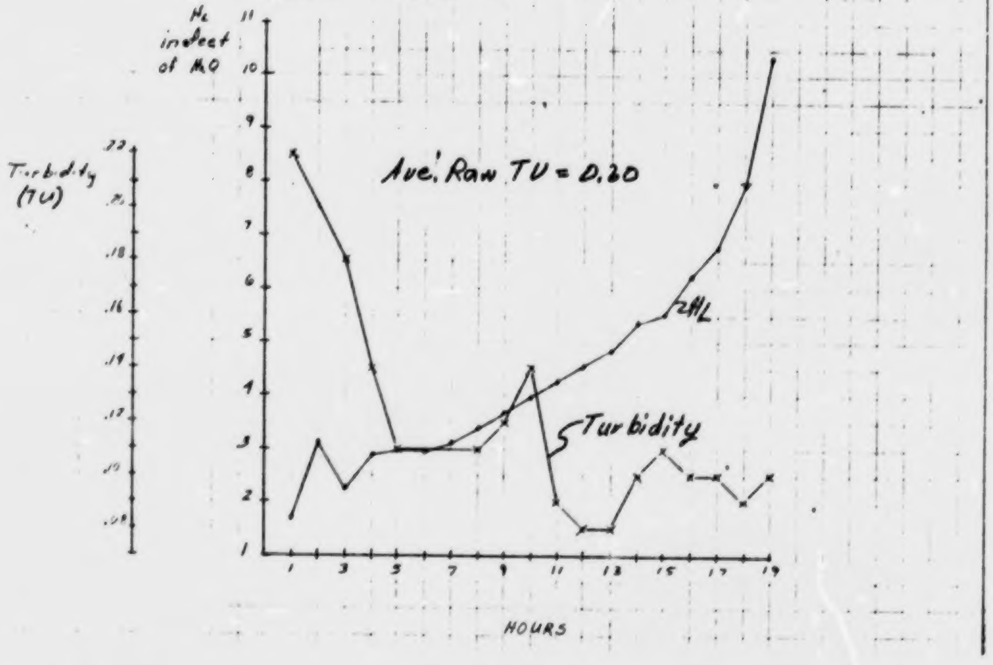
Head Loss and Effluent Turbidity Curves
MM-2 Run- 97



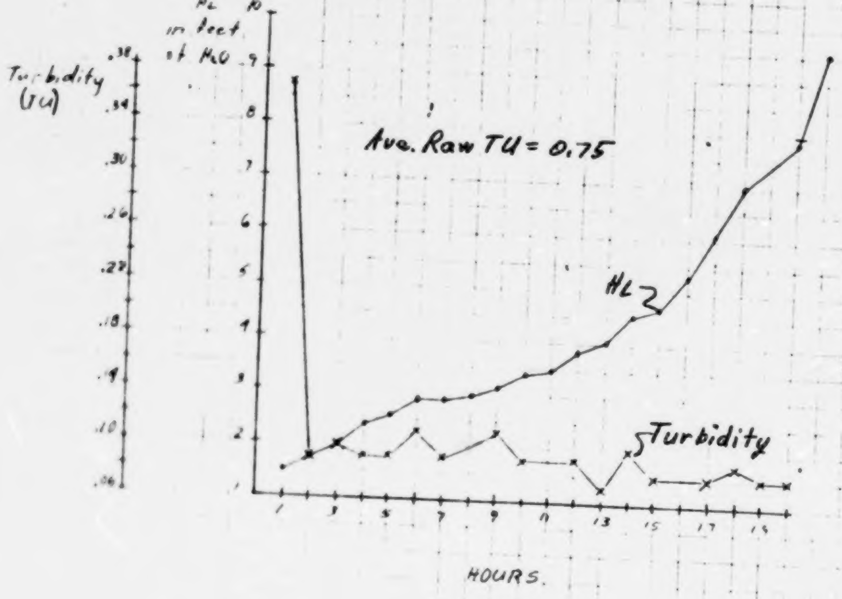
Head Loss and Effluent Turbidity Curves
MM-2 Run - 98



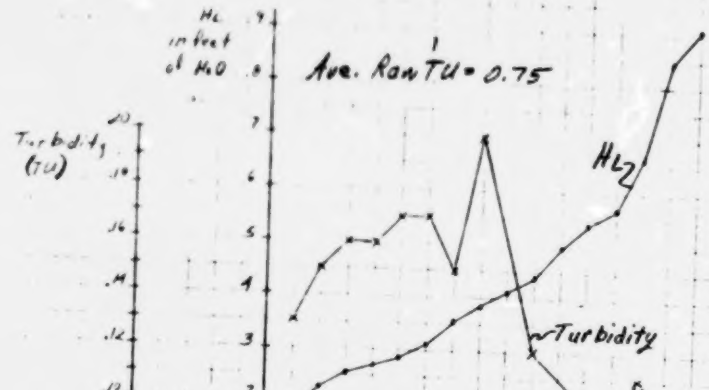
Head Loss and Effluent Turbidity Curves
MM-2 Run - 99



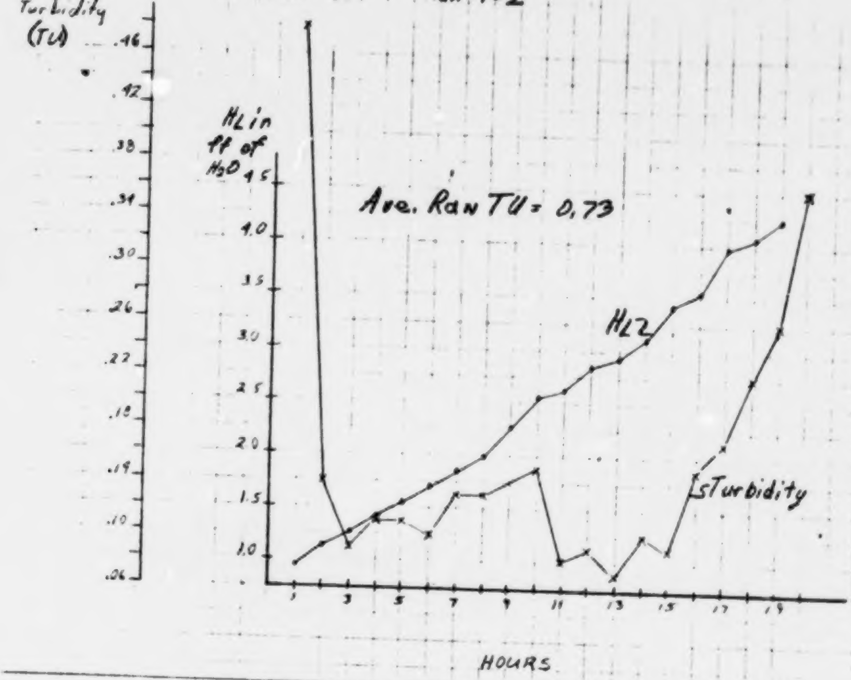
Head Loss and Effluent Turbidity Curves
MM-2 Run-100



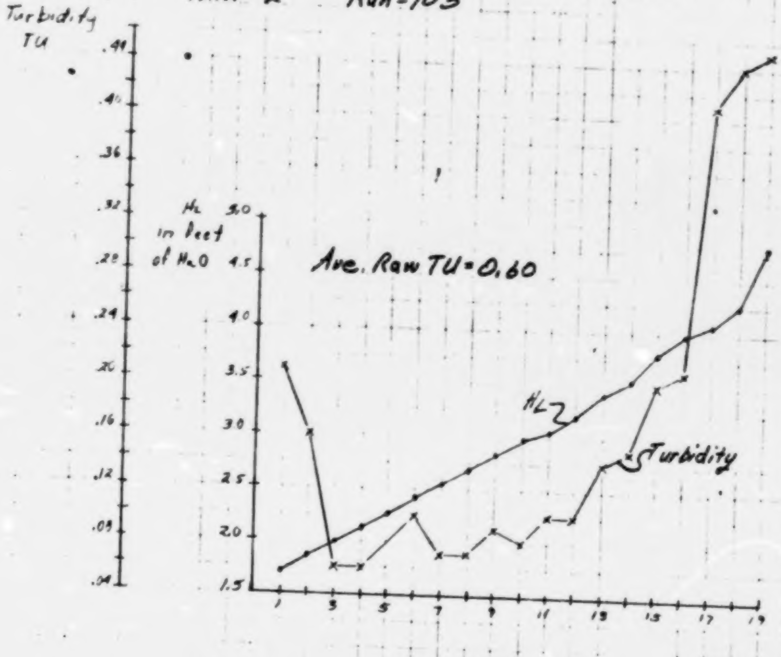
Head Loss and Effluent Turbidity Curves
MM-2 Run-101



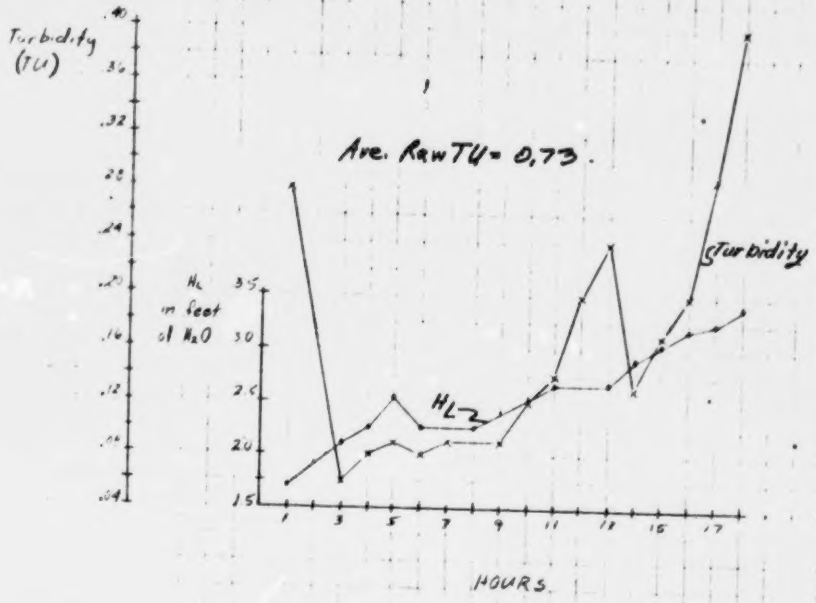
Head Loss and Effluent Turbidity Curves
MM-2 Run-102



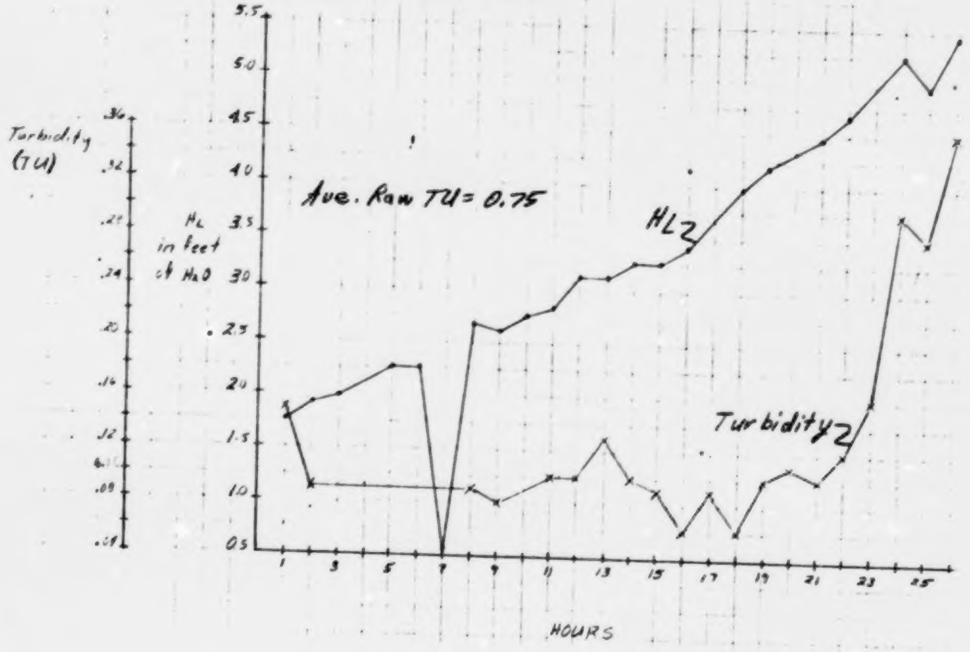
Head Loss and Effluent Turbidity Curves
MM-2 Run-103



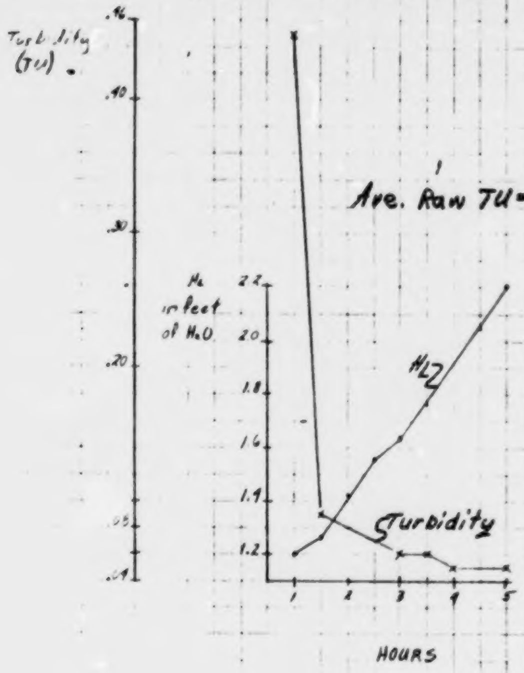
Head Loss and Effluent Turbidity Curves
MM-2 Run-104



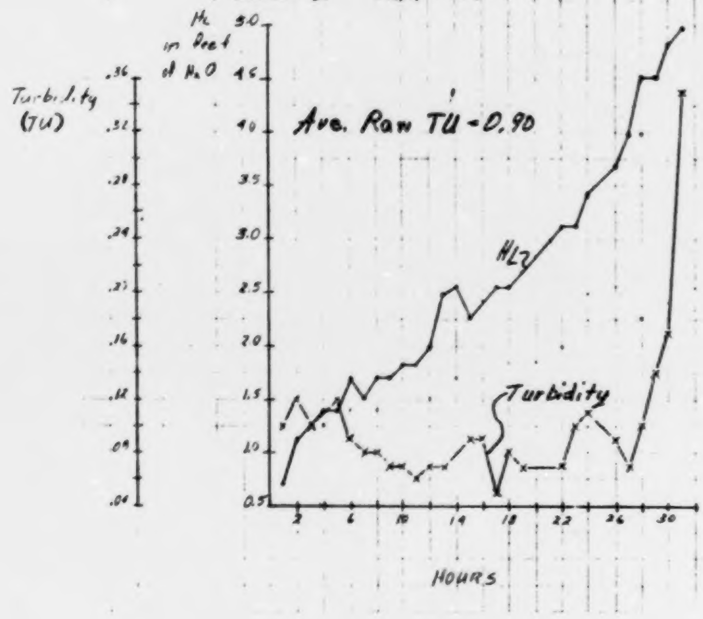
Head Loss and Effluent Turbidity Curves
MM-2 Run-105



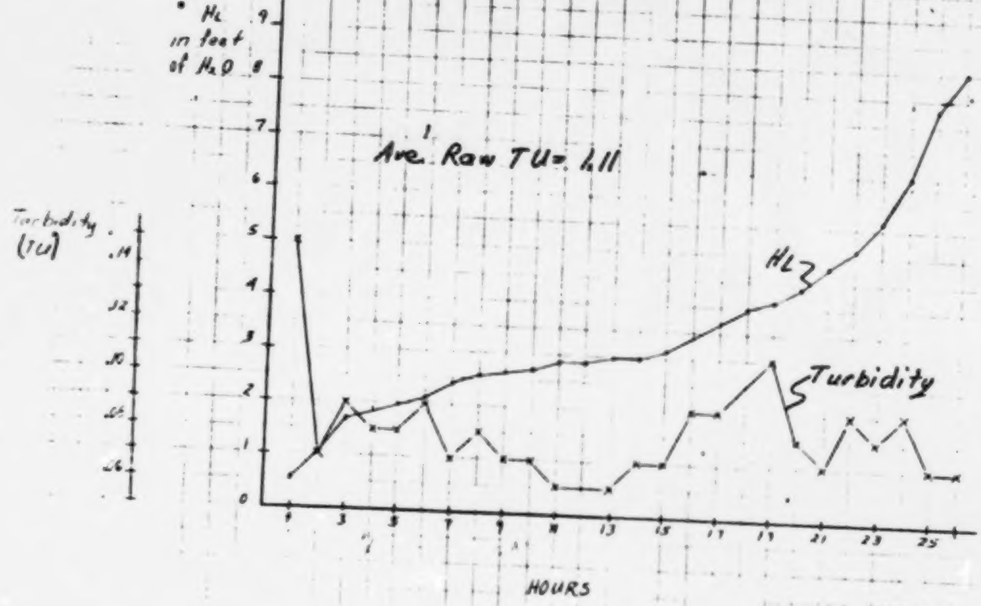
Head Loss and Effluent Turbidity Curves
MM-2 Run - 106



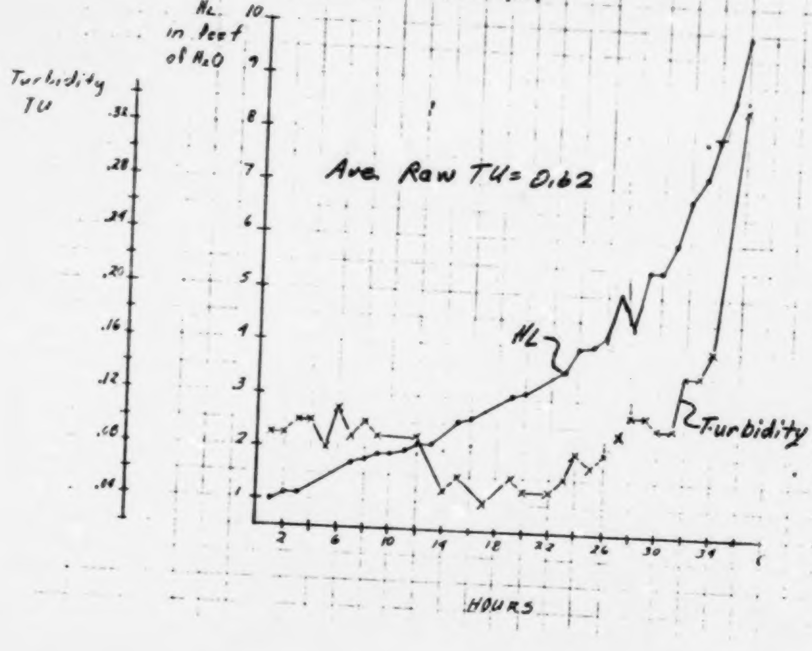
Head Loss and Effluent Turbidity Curves
MM-2 Run - 107



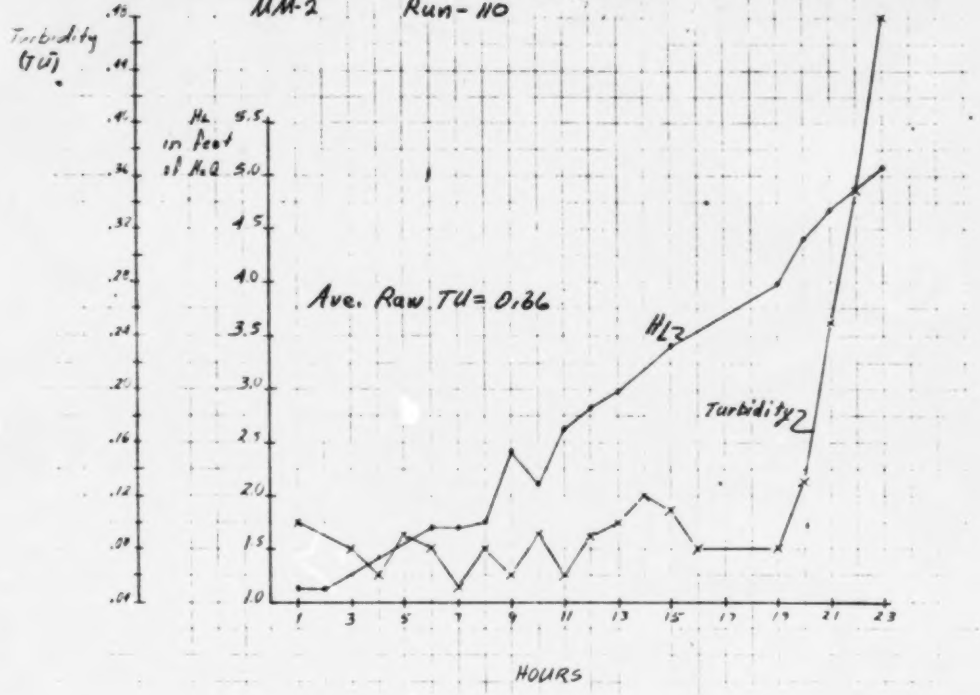
Head Loss and Effluent Turbidity Curves
MM-2 Run- 108



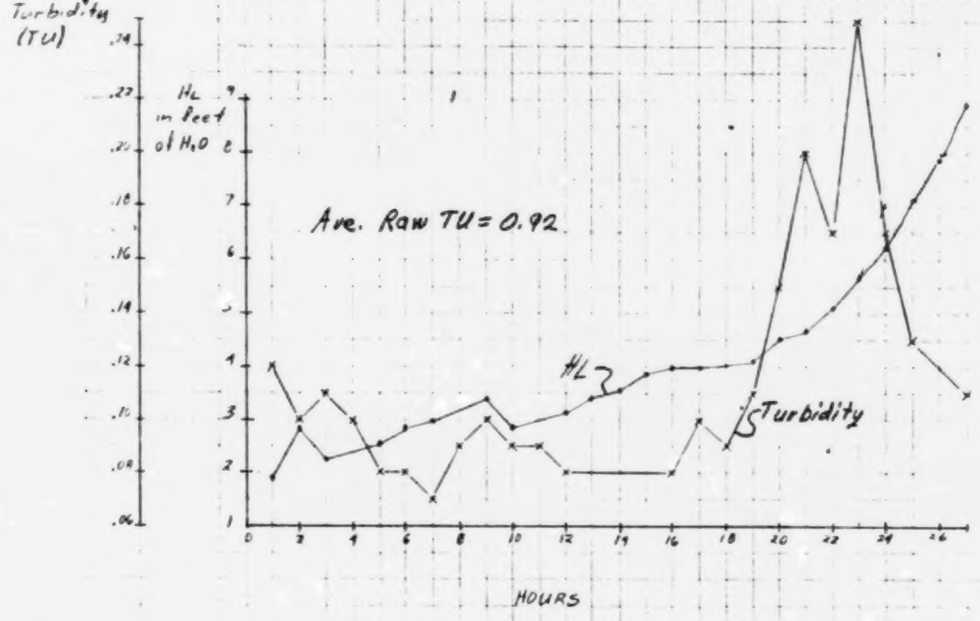
Head Loss and Effluent Turbidity Curves
MM-2 Run-109



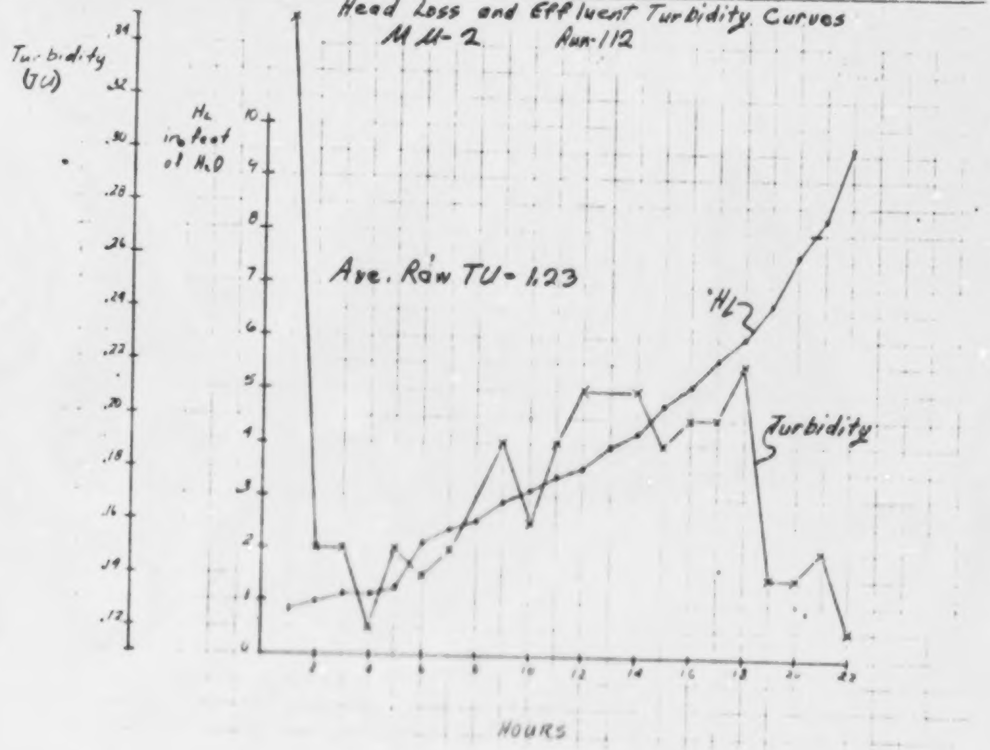
Head Loss and Effluent Turbidity Curves
MM-2 Run-110



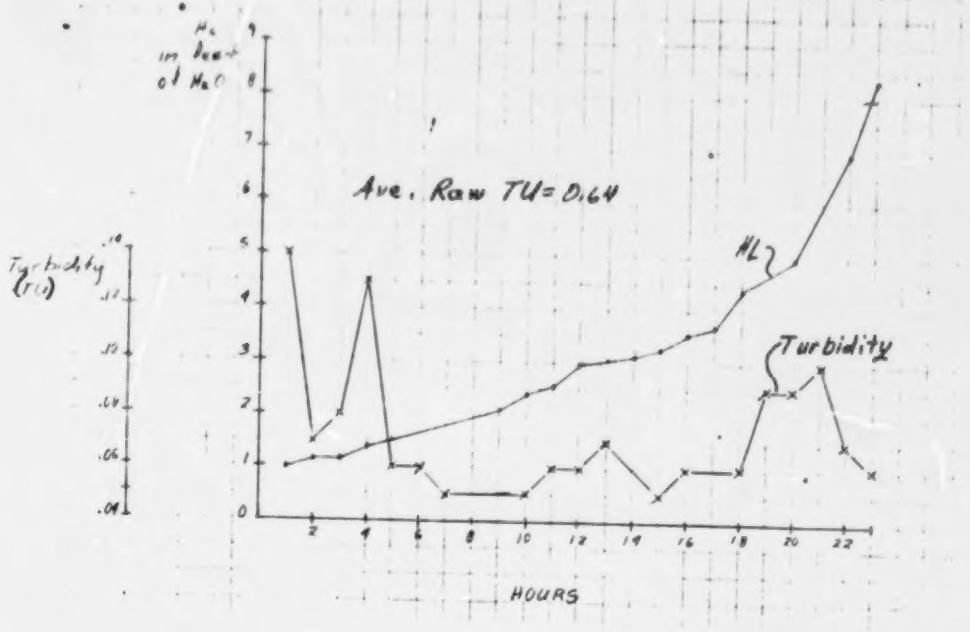
Head Loss and Effluent Turbidity Curves
MM-2 Run-111



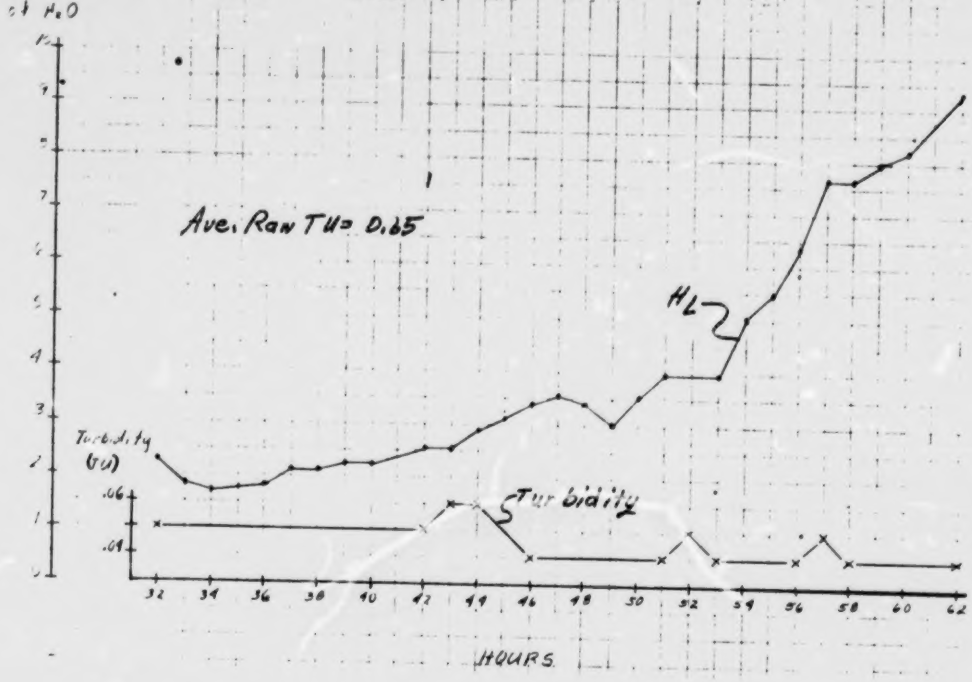
Head Loss and Effluent Turbidity Curves
MM-2 Run-112



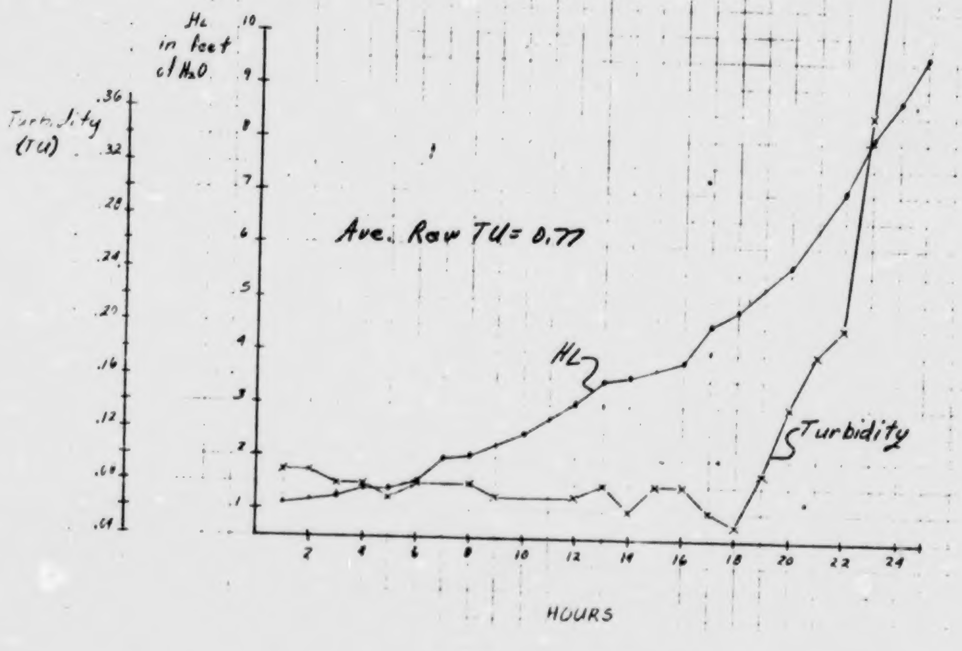
Head Loss and Effluent Turbidity Curves
MM-2 Run-113

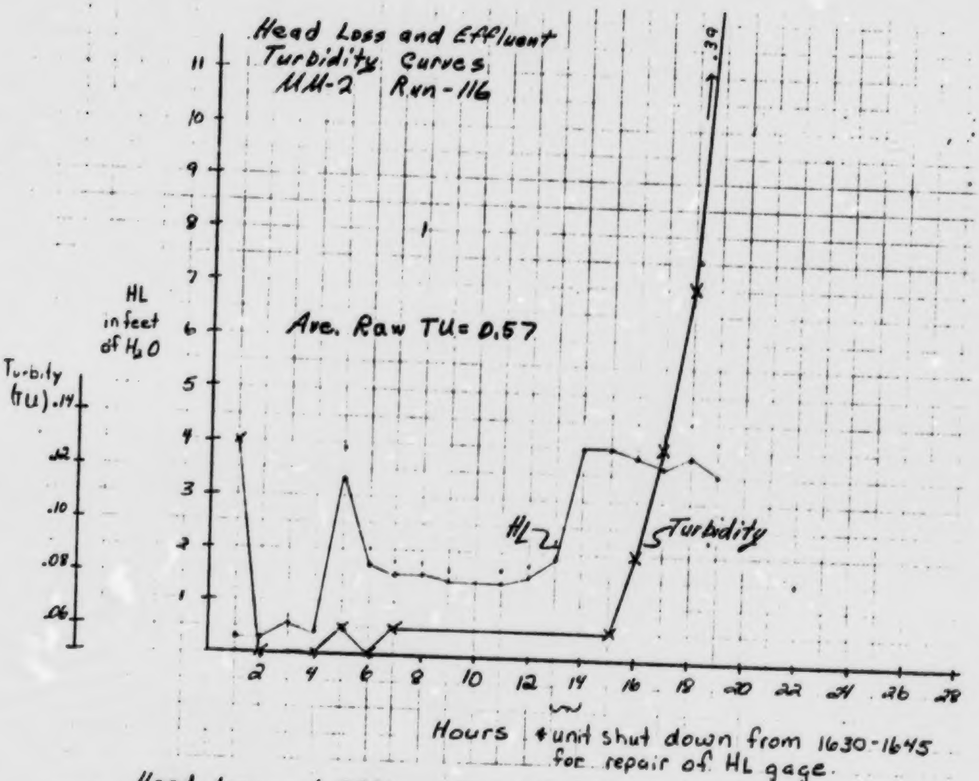


Head Loss and Effluent Turbidity Curves
MM-2 Run-114



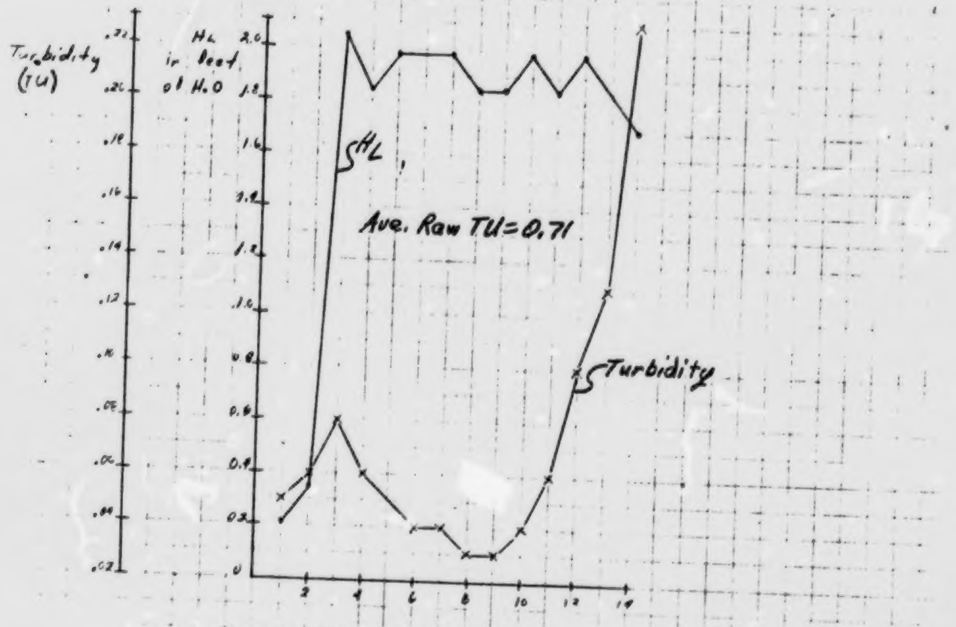
Head Loss and Effluent Turbidity Curves
MM-2 Run-115

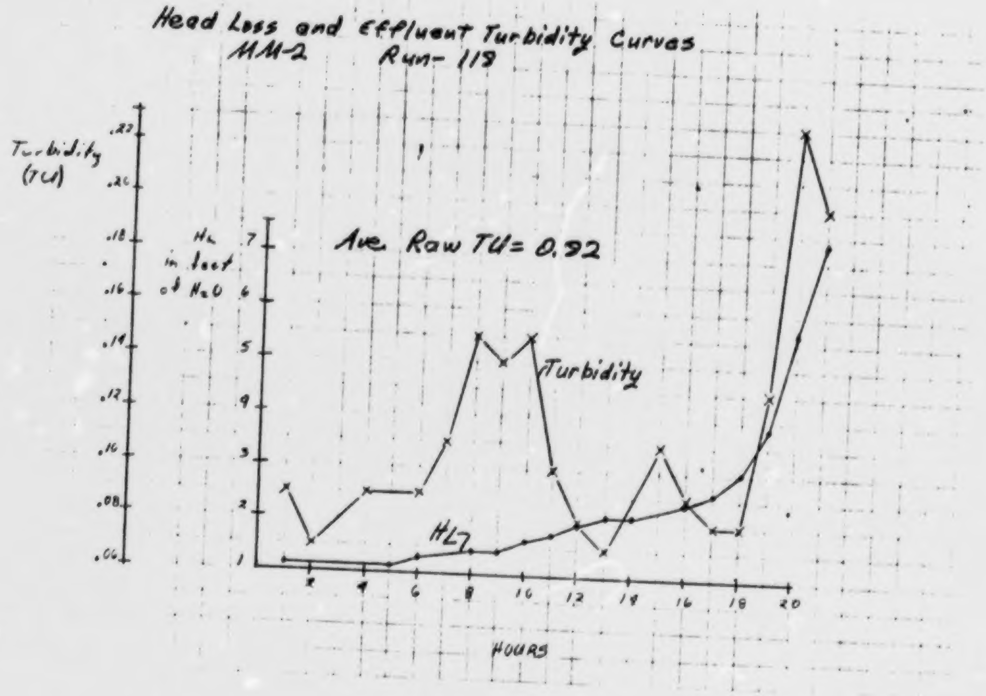


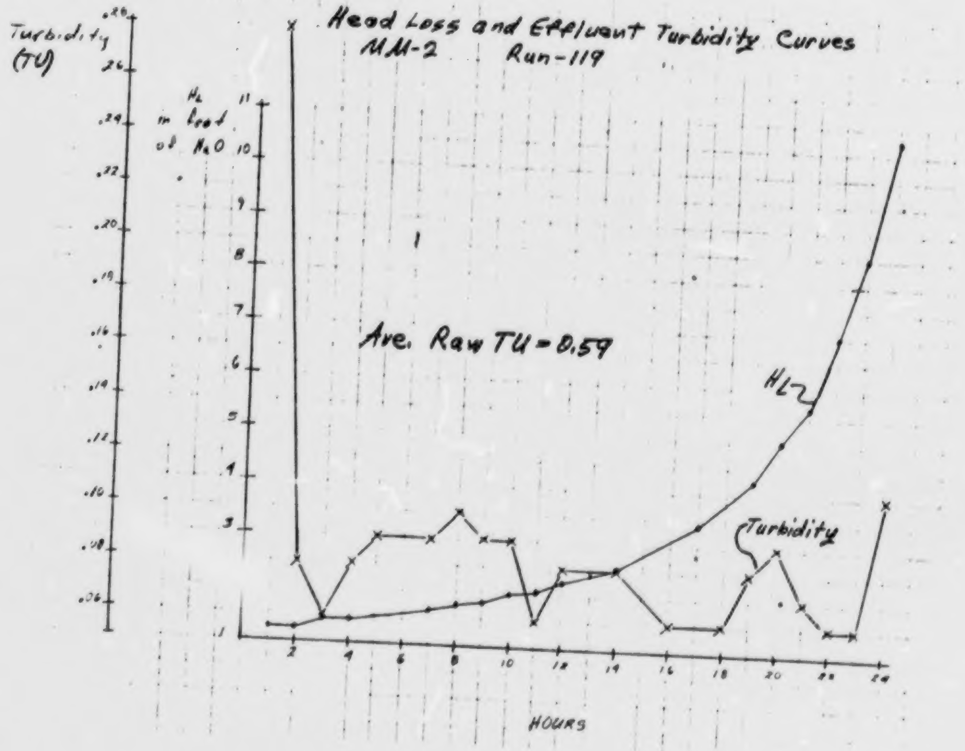

Head Loss and Effluent Turbidity Curves MM-2 Run-116

* unit shut down from 1630-1645 for repair of HL gage.

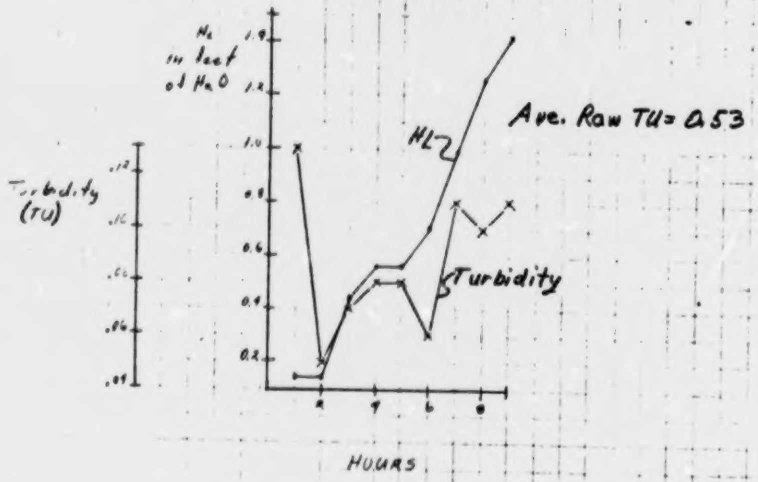
Head Loss and Effluent Turbidity Curves MM-2 Run-117



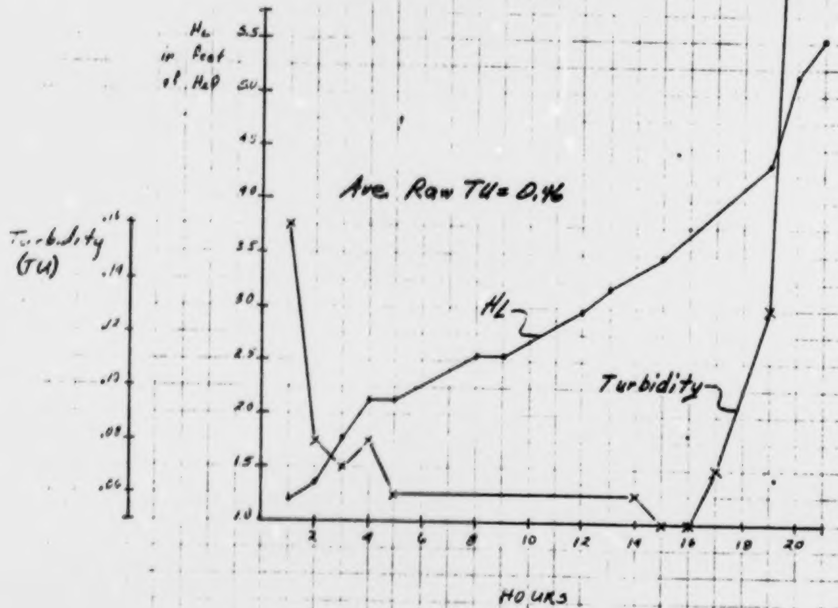

Head Loss and Effluent Turbidity Curves
MM-2 Run- 118

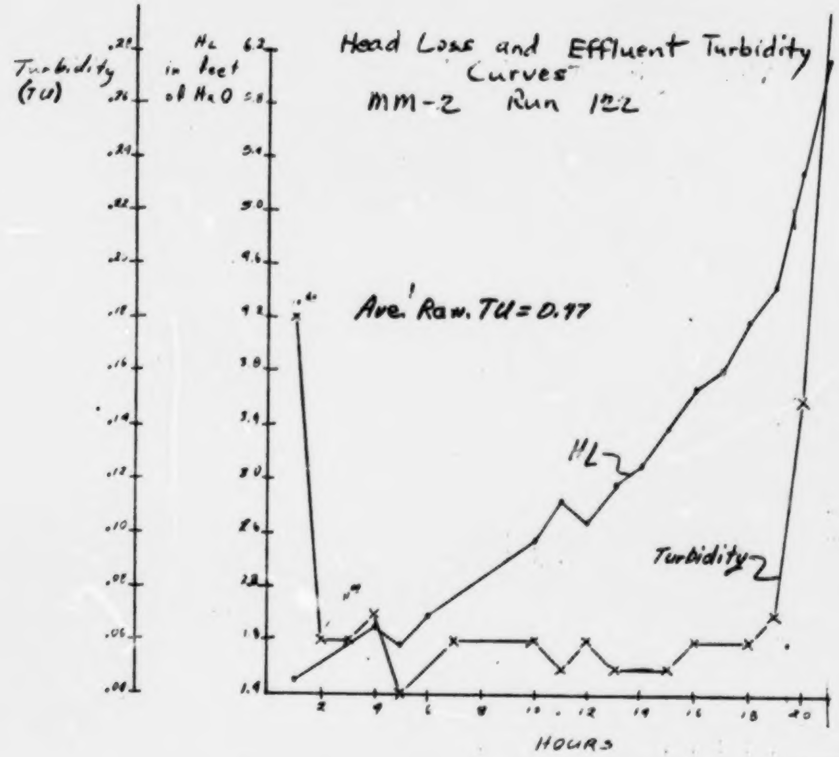

Head Loss and Effluent Turbidity Curves
MM-2 Run-119

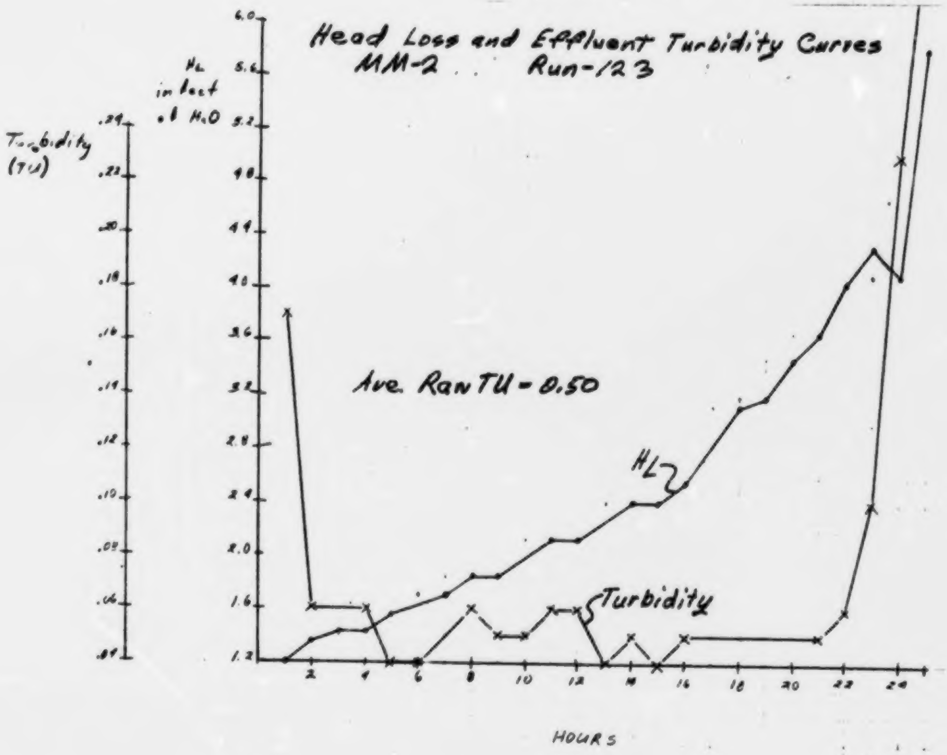
Head Loss and Effluent Turbidity Curves
MM- 2 Run; 120

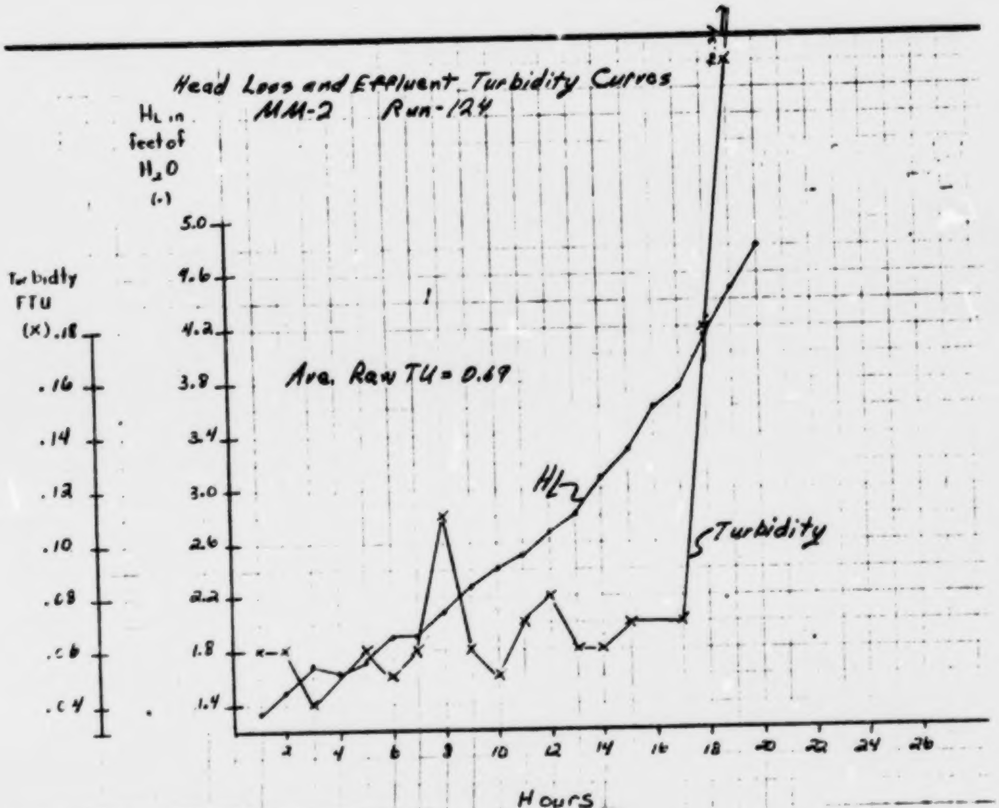


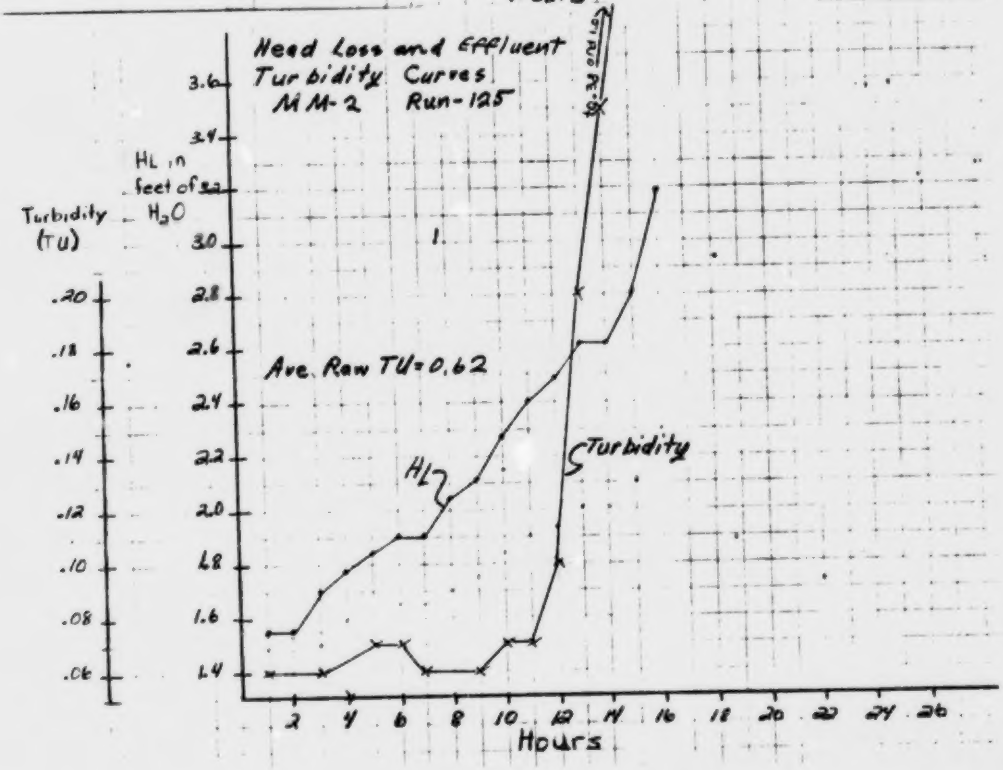
Head Loss and Effluent Turbidity Curves
MM-2 Run 121

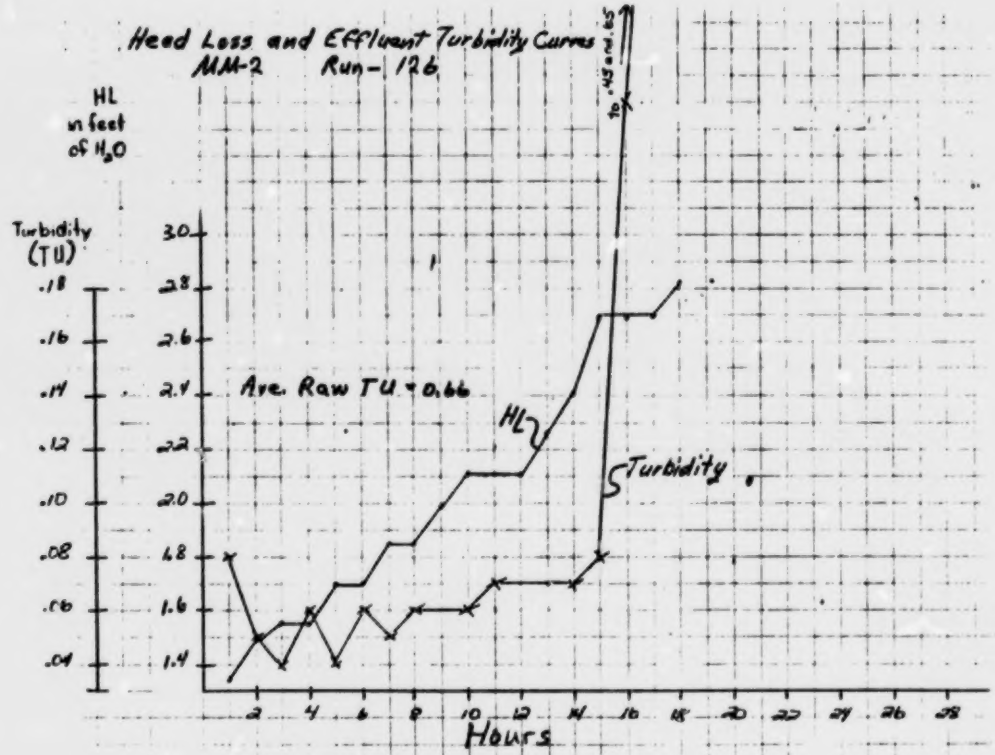


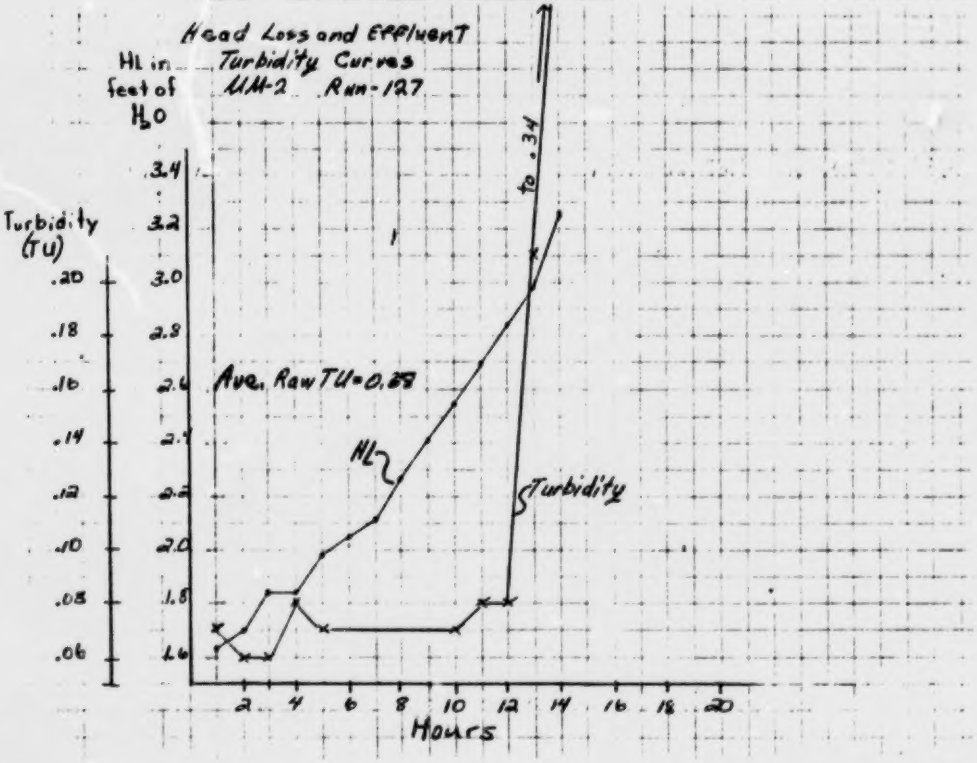

Head Loss and Effluent Turbidity Curves
MM-2 Run 122
Turbidity (TU)
HL in feet of H₂O
.28
.26
.24
.22
.20
.18
.16
.14
.12
.10
.08
.06
.04
6.2
5.8
5.4
5.0
4.6
4.2
3.8
3.4
3.0
2.6
2.2
1.8
1.4
Ave. Raw. TU = 0.47
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
HOURS

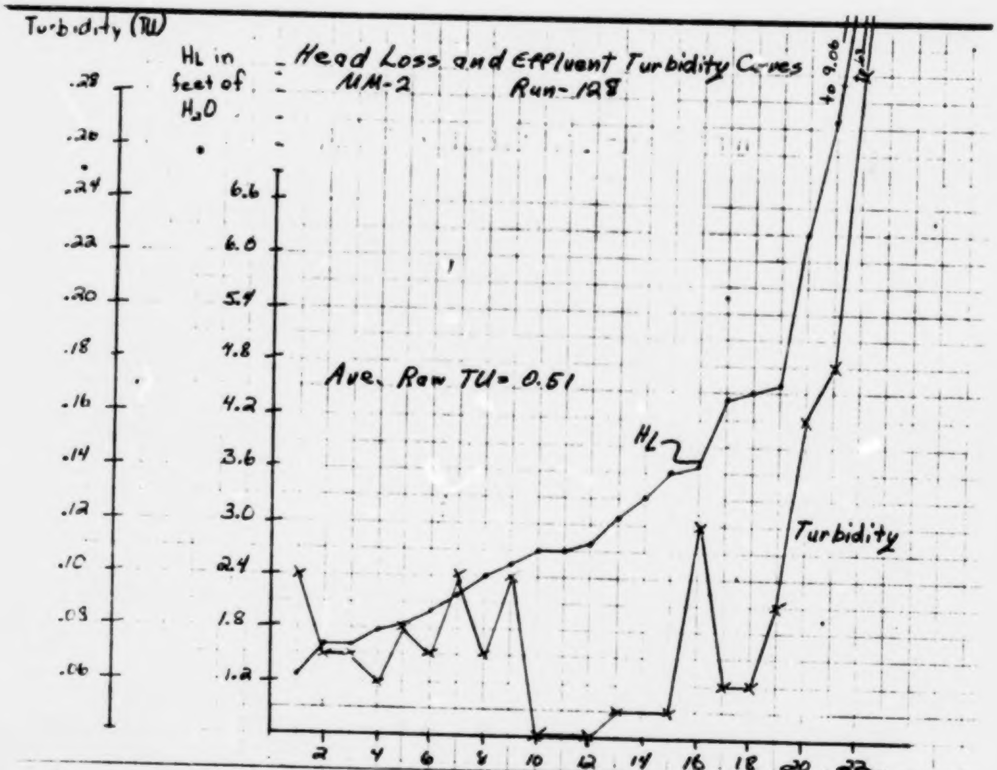

Head Loss and Effluent Turbidity Curves
MM-2 Run-123
Turbidity (TU)
HL in feet of H₂O
.24
.22
.20
.18
.16
.14
.12
.10
.08
.06
.04
6.0
5.6
5.2
4.8
4.4
4.0
3.6
3.2
2.8
2.4
2.0
1.6
1.2
Ave. Raw TU = 0.50
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
HOURS

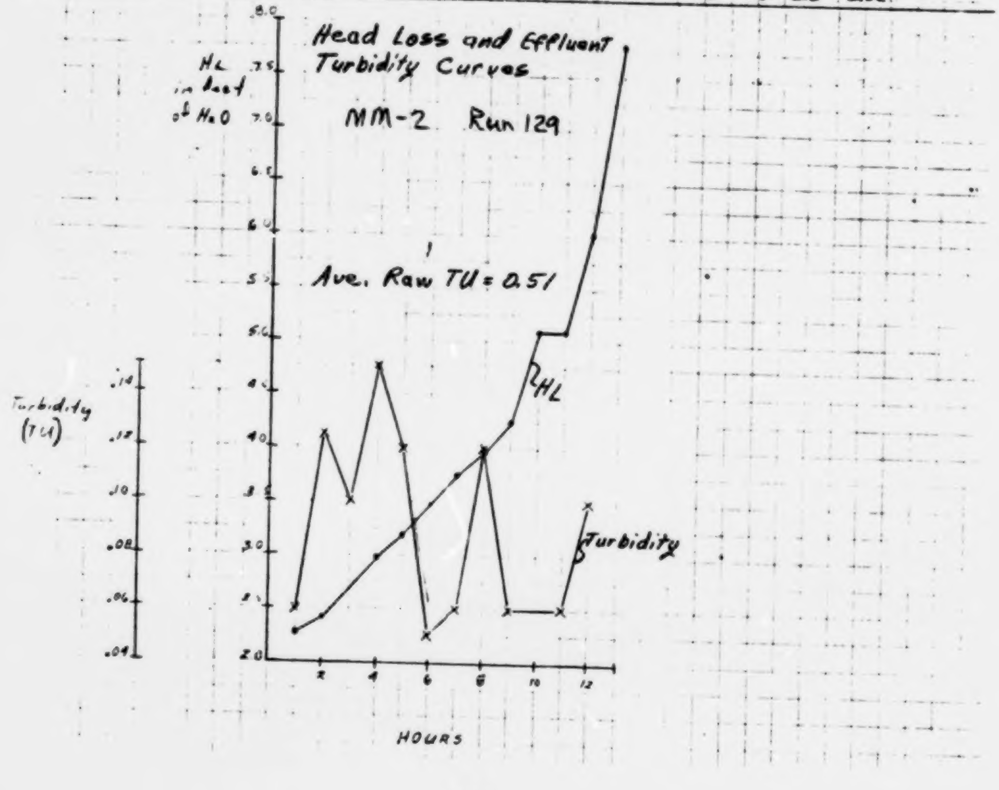

Head Loss and Effluent Turbidity Curves
MM-2 Run-124
HL in feet of H_2O (·)
Turbidty FTU (x)
5.0
4.6
4.2
3.8
3.4
3.0
2.6
2.2
1.8
1.4
.18
.16
.14
.12
.10
.08
.06
.04
Ave. Raw TU = 0.69
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
Hours

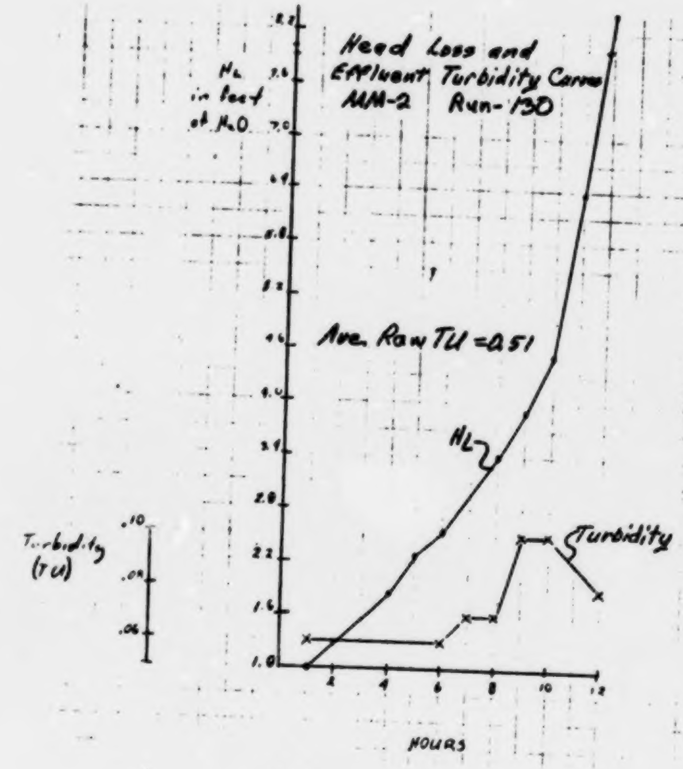

Head Loss and Effluent Turbidity Curves
MM-2 Run-125
HL in feet of H_2O
Turbidity (TU)
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
.20
.18
.16
.14
.12
.10
.08
.06
Ave. Raw TU = 0.62
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
Hours

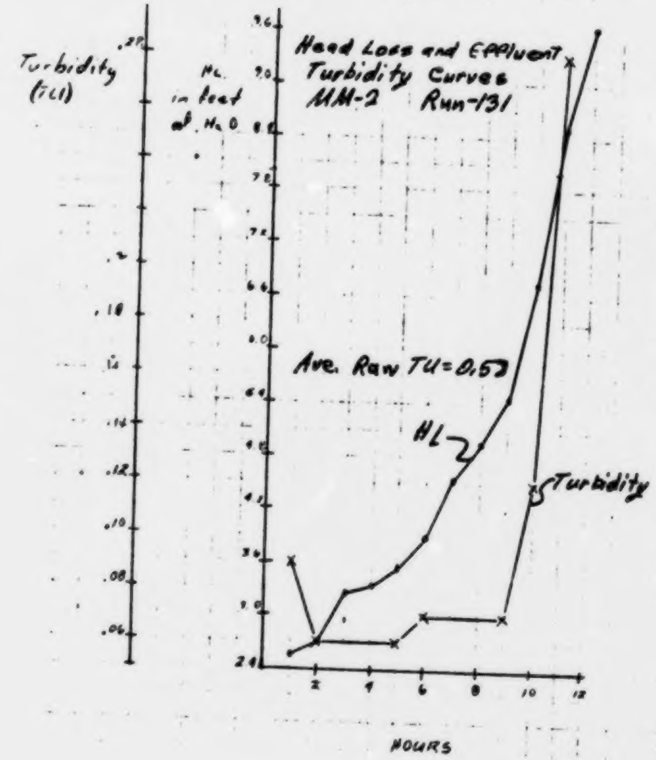

Head Loss and Effluent Turbidity Curves
MM-2 Run- 126
HL in feet of H2O
Turbidity (TU)
.18
.16
.14
.12
.10
.08
.06
.04
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
Ave. Raw TU = 0.66
HL
Turbidity
to .45 and .65
2
4
6
8
10
12
14
16
18
20
22
24
26
28
Hours

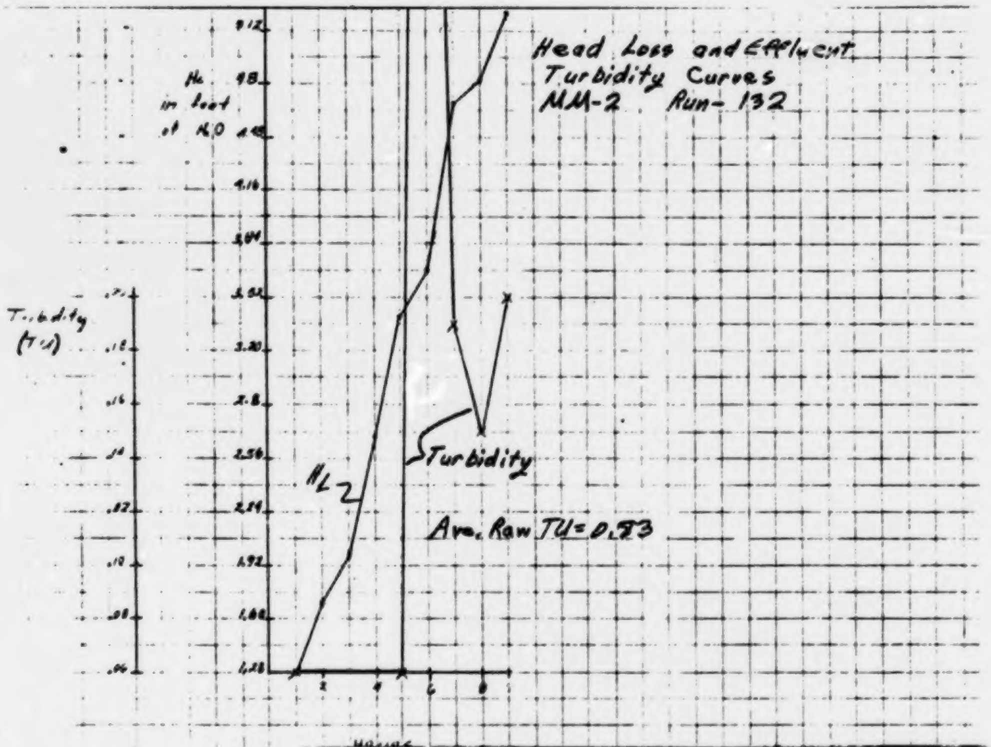

Head Loss and Effluent Turbidity Curves
MM-2 Run-127
HL in feet of H2O
Turbidity (TU)
.20
.18
.16
.14
.12
.10
.08
.06
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
Ave. Raw TU = 0.38
HL
Turbidity
to .34
2
4
6
8
10
12
14
16
18
20
Hours

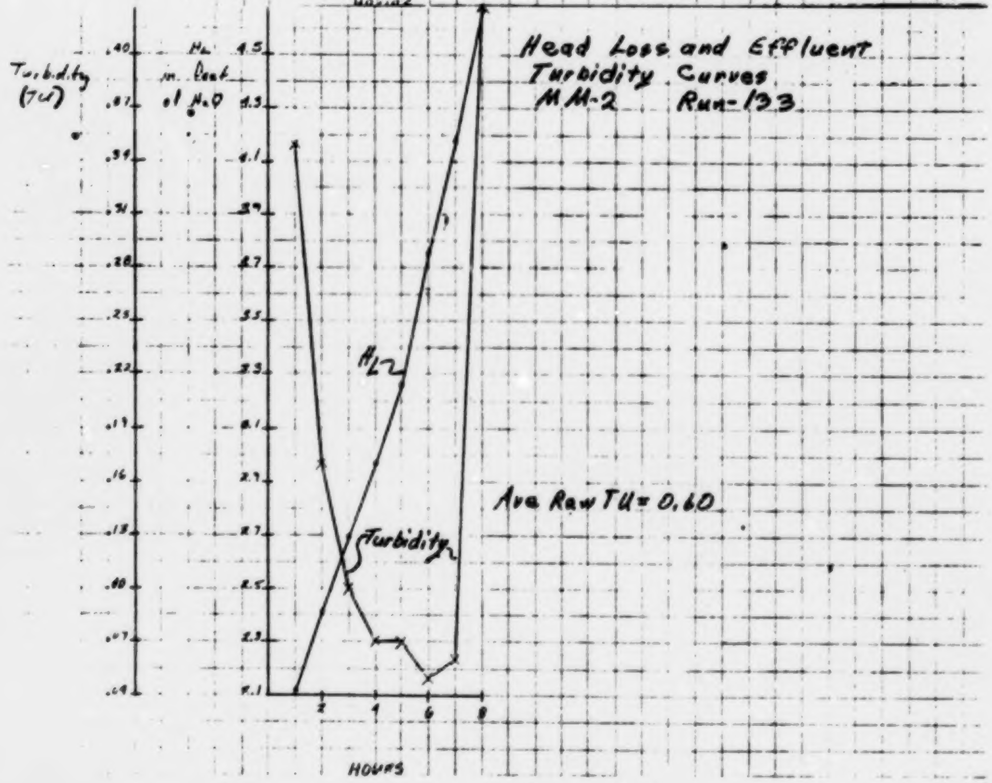

Turbidity (TU)
HL in feet of H2O
Head Loss and Effluent Turbidity Curves
MM-2
Run-128
to 9.06
Ave. Raw TU= 0.51
HL
Turbidity
.28
.26
.24
.22
.20
.18
.16
.14
.12
.10
.08
.06
6.6
6.0
5.4
4.8
4.2
3.6
3.0
2.4
1.8
1.2
2
4
6
8
10
12
14
16
18
20
22

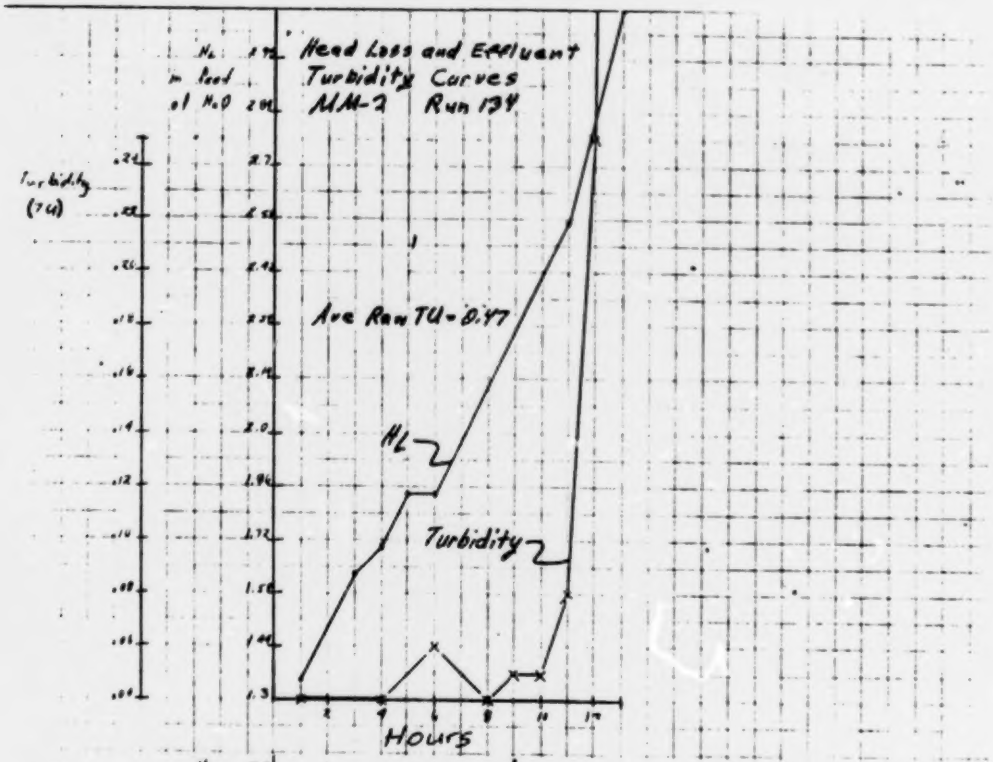

Head Loss and Effluent Turbidity Curves
MM-2 Run 129
HL in feet of H2O
Ave. Raw TU= 0.51
HL
Turbidity (TU)
Turbidity
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
.14
.12
.10
.08
.06
.04
2
4
6
8
10
12
HOURS

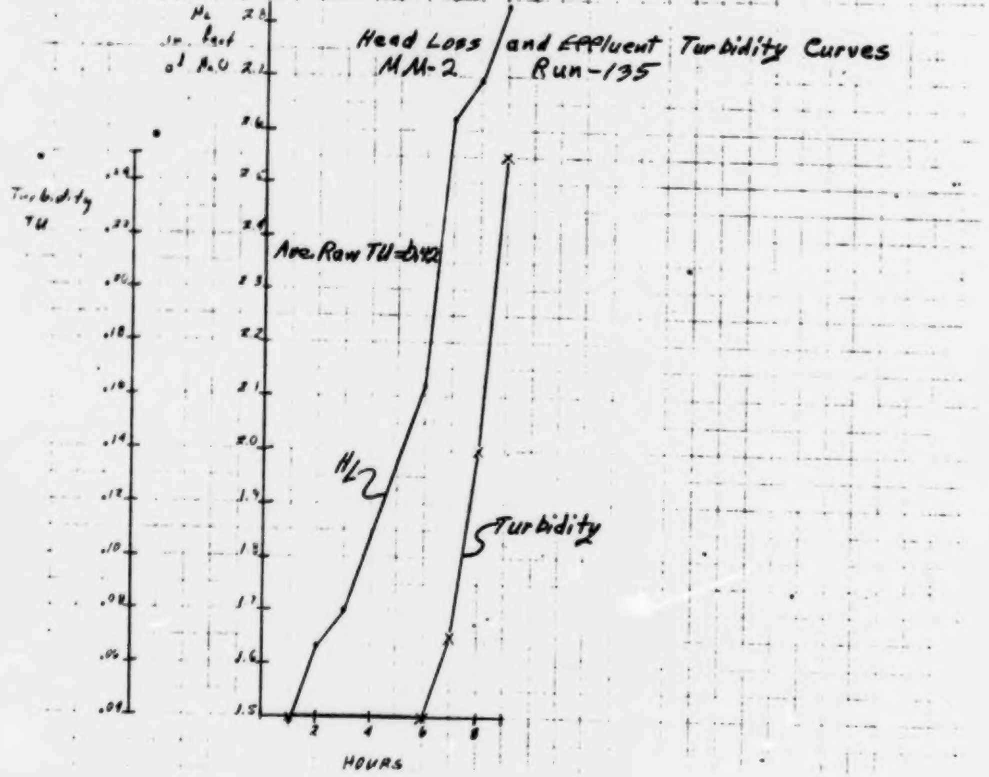

Head Loss and Effluent Turbidity Curves
MM-2 Run-130
HL in feet of H2O
8.2
7.6
7.0
6.4
5.8
5.2
4.6
4.0
3.4
2.8
2.2
1.6
1.0
Ave. Raw TU = 0.51
HL
Turbidity
Turbidity (TU)
.10
.08
.06
2
4
6
8
10
12
HOURS

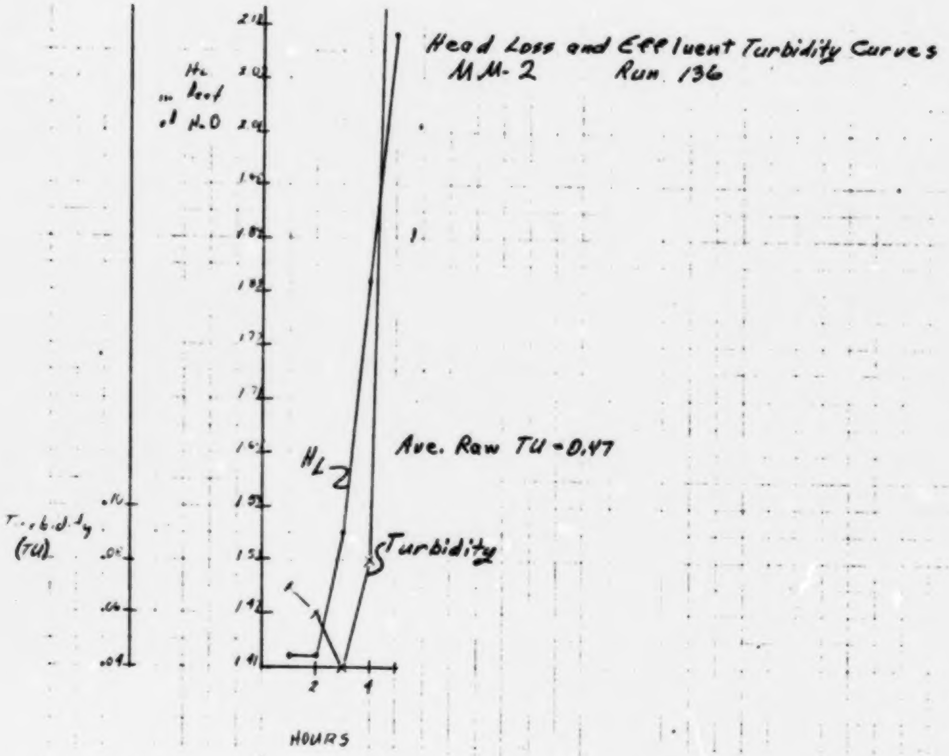

Head Loss and Effluent Turbidity Curves
MM-2 Run-131
Turbidity (TU)
.28
.20
.18
.16
.14
.12
.10
.08
.06
HL in feet of H2O
9.6
9.0
8.4
7.8
7.2
6.6
6.0
5.4
4.8
4.2
3.6
3.0
2.4
Ave. Raw TU = 0.53
HL
Turbidity
2
4
6
8
10
12
HOURS

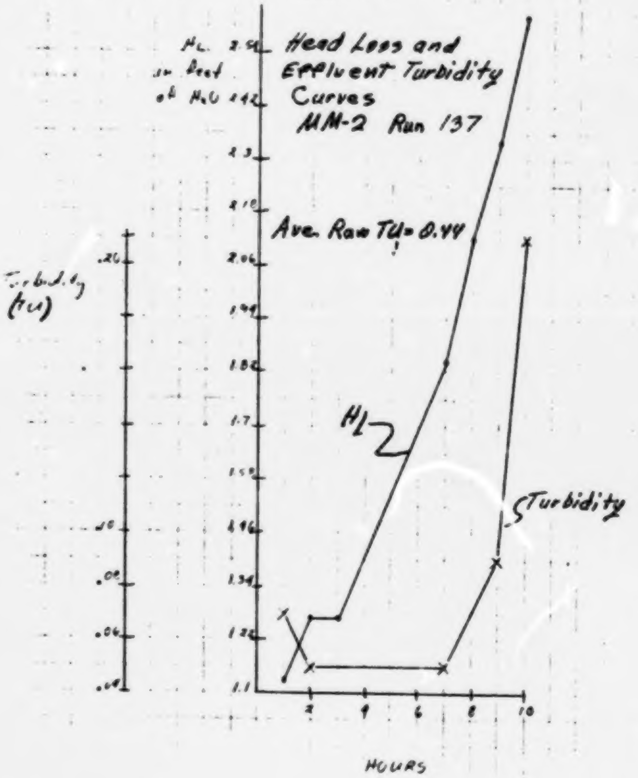

Head Loss and Effluent Turbidity Curves MM-2 Run- 132

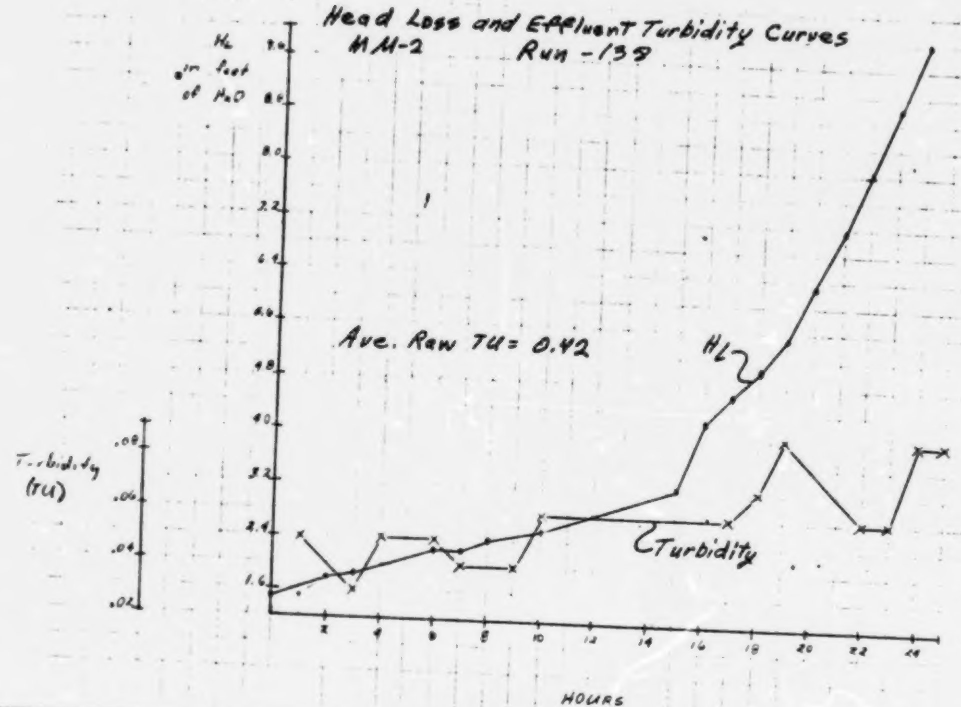

Head Loss and Effluent Turbidity Curves MM-2 Run-133

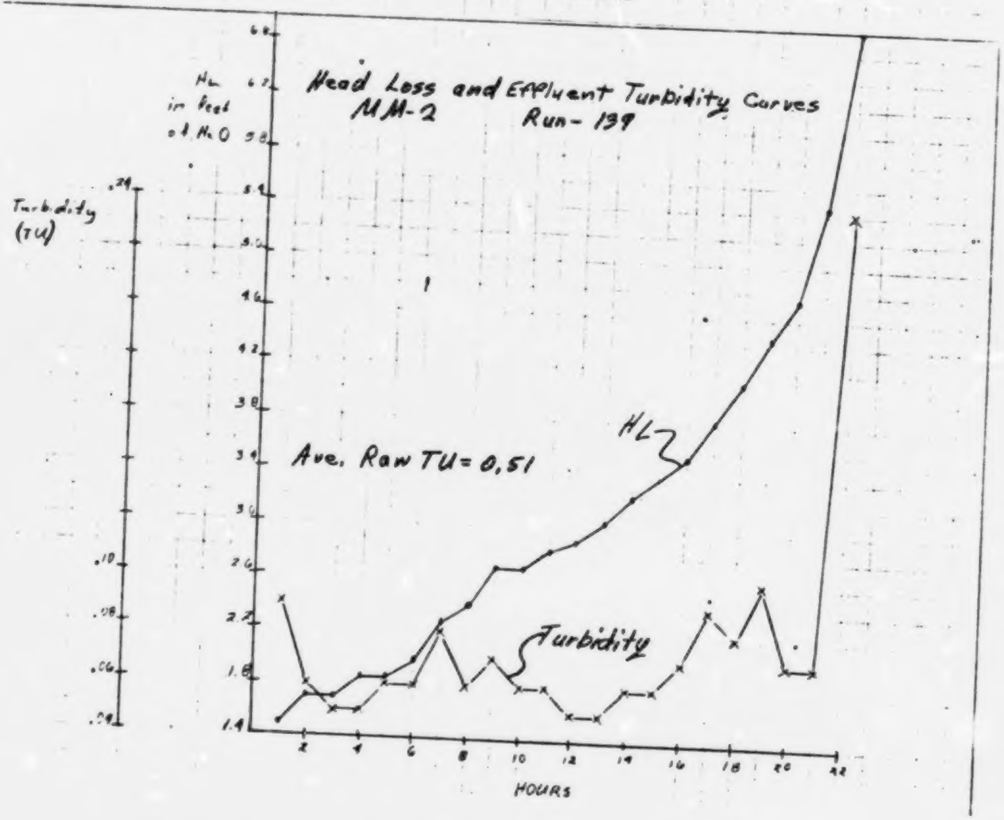

Head Loss and Effluent Turbidity Curves
MM-2 Run 134
HL in feet of H₂O
Turbidity (TU)
Ave Raw TU = 0.47
HL
Turbidity
.24
.22
.20
.18
.16
.14
.12
.10
.08
.06
.04
1.3
1.40
1.56
1.72
2.0
2.72
2
4
6
8
10
12
Hours

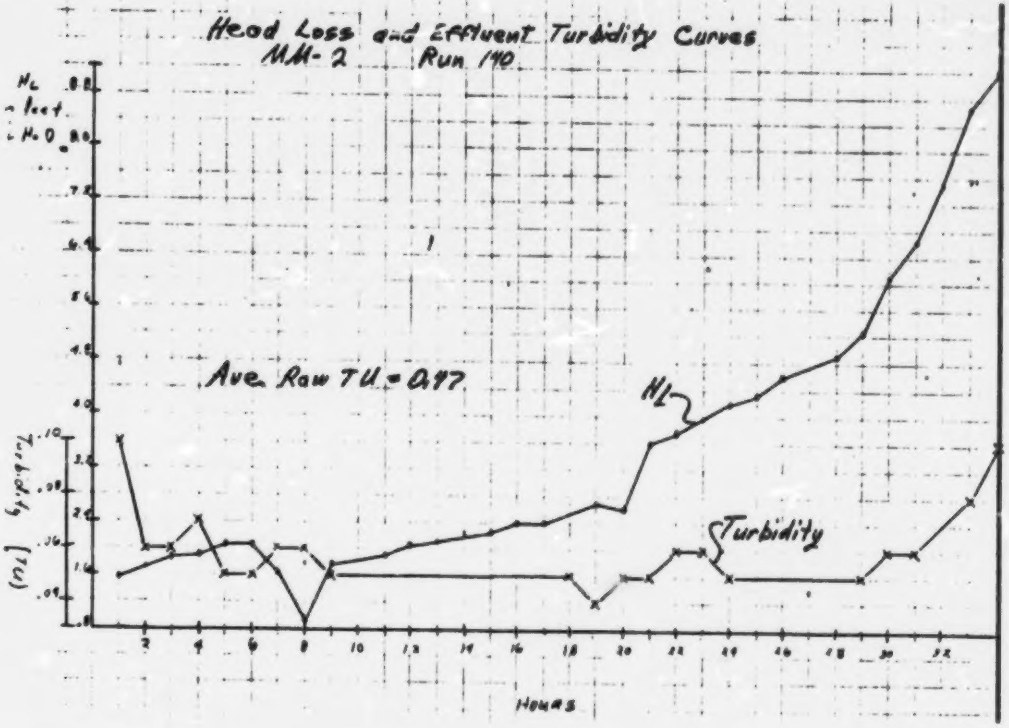

Head Loss and Effluent Turbidity Curves
MM-2 Run-135
HL in feet of H₂O
Turbidity TU
Ave. Raw TU = 0.42
HL
Turbidity
.22
.18
.10
.06
.04
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.8
2
4
6
8
HOURS


Head Loss and Effluent Turbidity Curves
MM-2 Run 136
HL in feet of H2O
Turbidity (TU)
Ave. Raw TU = 0.47
HL
Turbidity
.10
.08
.06
.04
2
4
HOURS

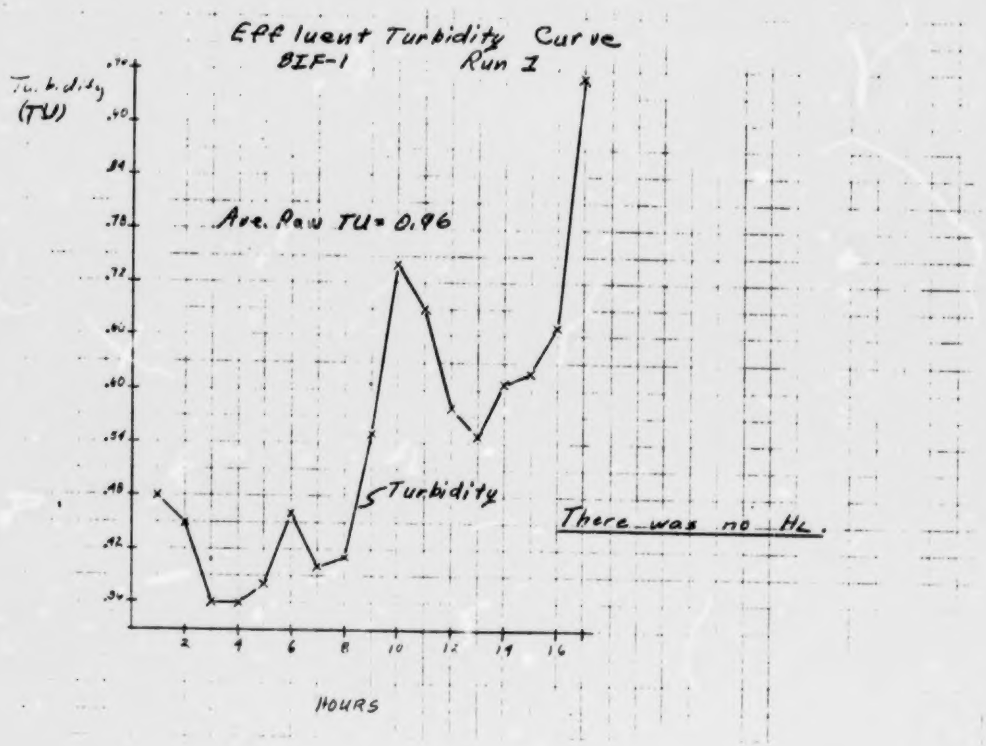

Head Loss and Effluent Turbidity Curves
MM-2 Run 137
HL in feet of H2O
Turbidity (TU)
Ave. Raw TU = 0.44
HL
Turbidity
2.3
1.7
1.1
.20
.10
.08
.06
2
4
6
8
10
HOURS

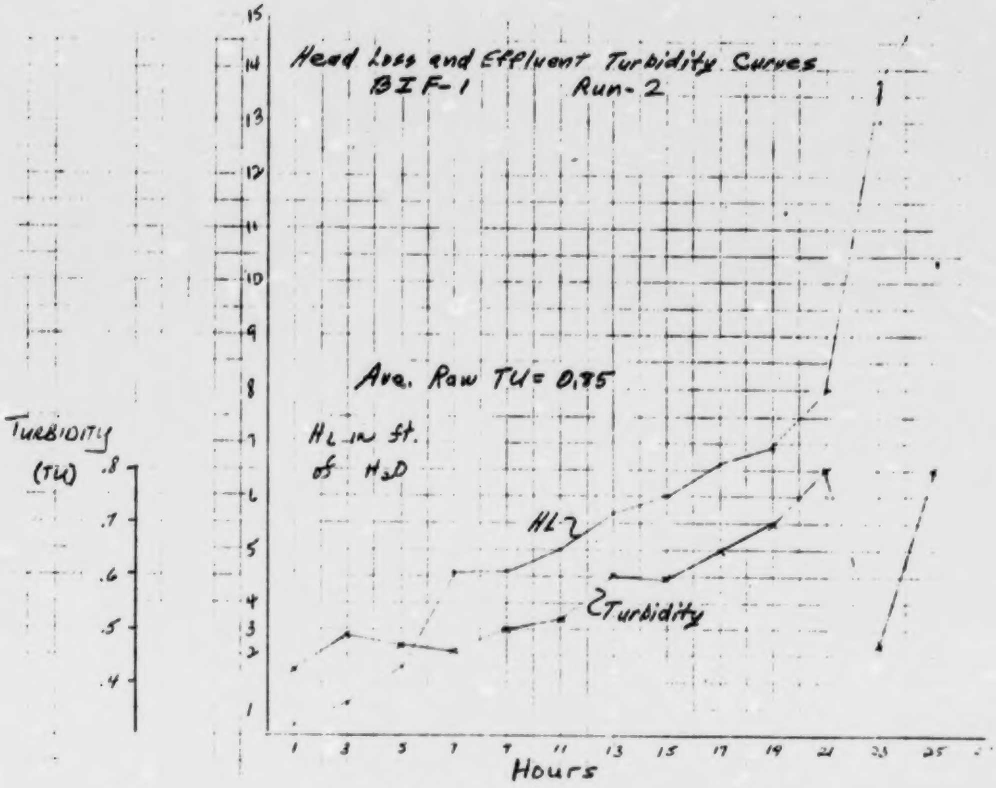

Head Loss and Effluent Turbidity Curves
MM-2
Run - 139
HL in feet of H2O
9.6
8.8
8.0
7.2
6.4
5.6
4.8
4.0
3.2
2.4
1.6
Turbidity (TU)
.08
.06
.04
.02
Ave. Raw TU = 0.42
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
HOURS

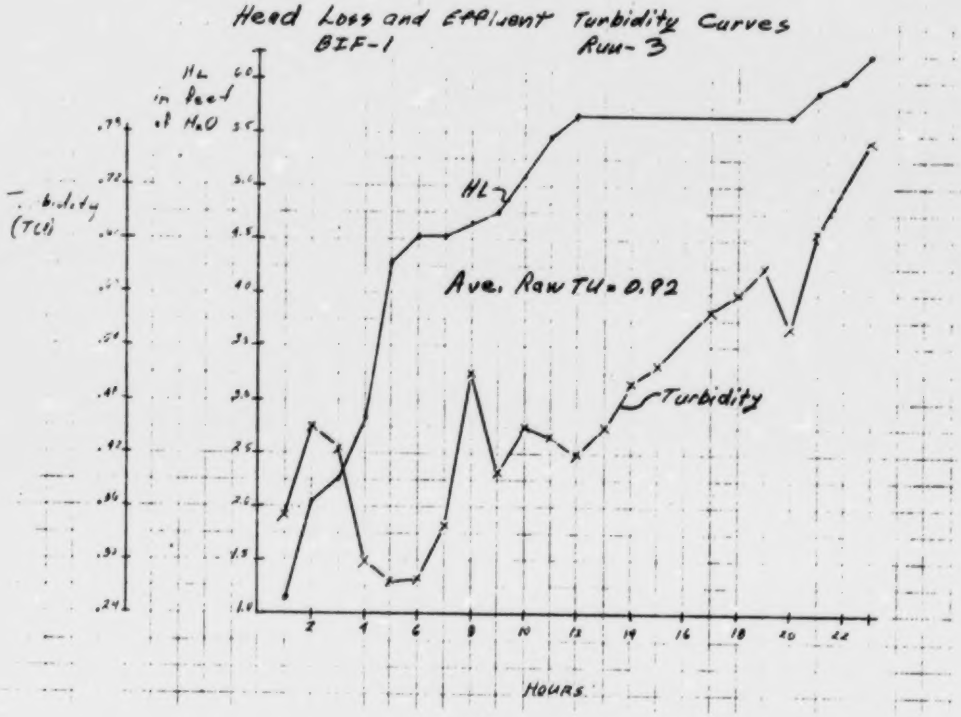

Head Loss and Effluent Turbidity Curves
MM-2
Run - 139
HL in feet of H2O
6.6
6.2
5.8
5.4
5.0
4.6
4.2
3.8
3.4
3.0
2.6
2.2
1.8
1.4
Turbidity (TU)
.24
.10
.08
.06
.04
Ave. Raw TU = 0.51
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
HOURS

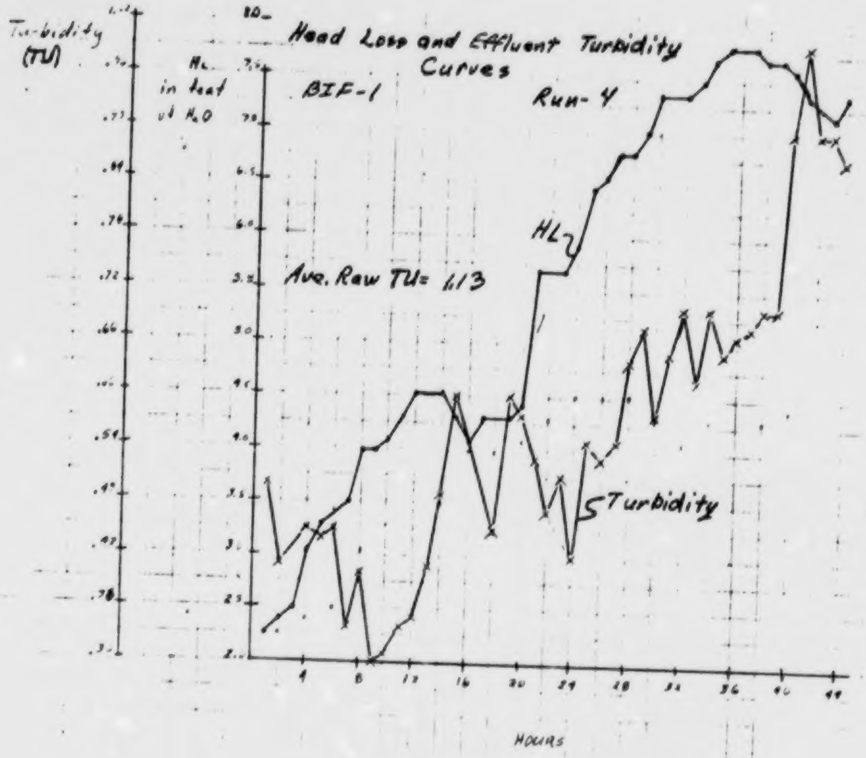

Head Loss and Effluent Turbidity Curves
MM-2 Run 140
HL
= feet
of H2O
8.8
8.0
7.2
6.4
5.6
4.8
4.0
3.2
2.4
1.6
.8
Turbidity (TU)
.10
.08
.06
.04
Ave. Raw TU = 0.47
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
Hours

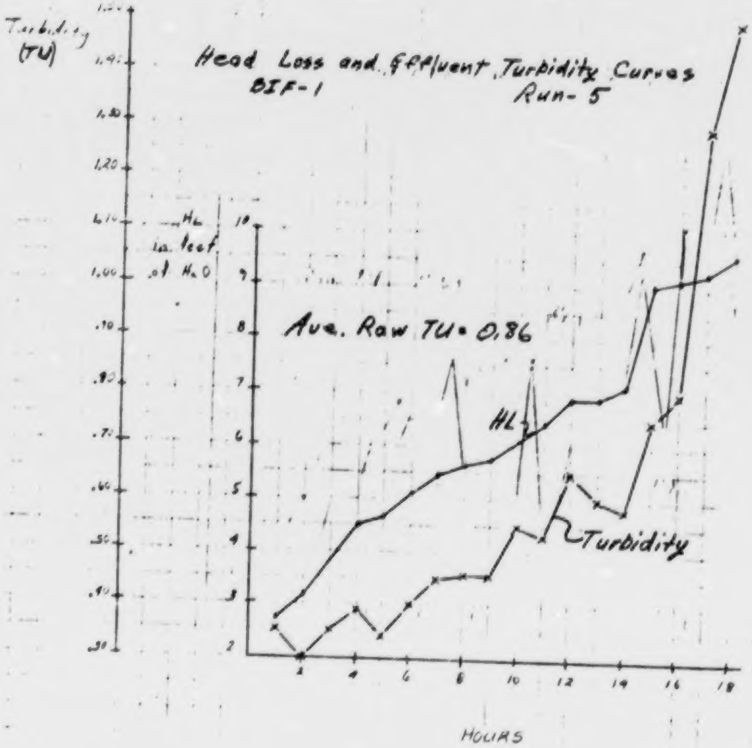
APPENDIX D-3 - VACUUM DIATOMACEOUS EARTH FILTRATION (BIF) HEAD LOSS AND TURBIDITY CURVES

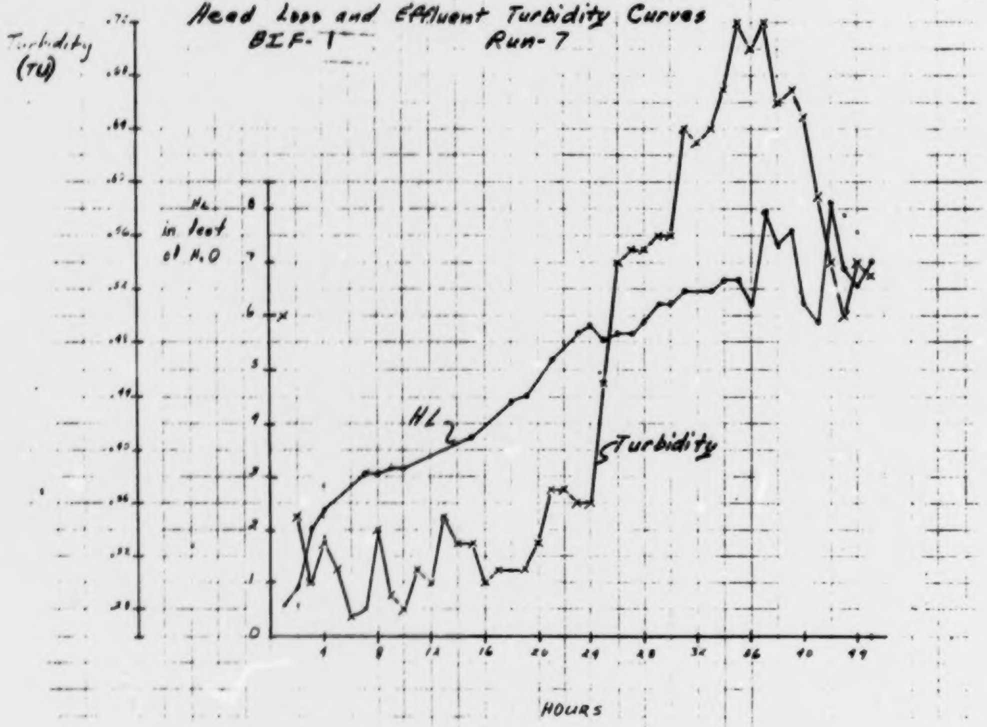


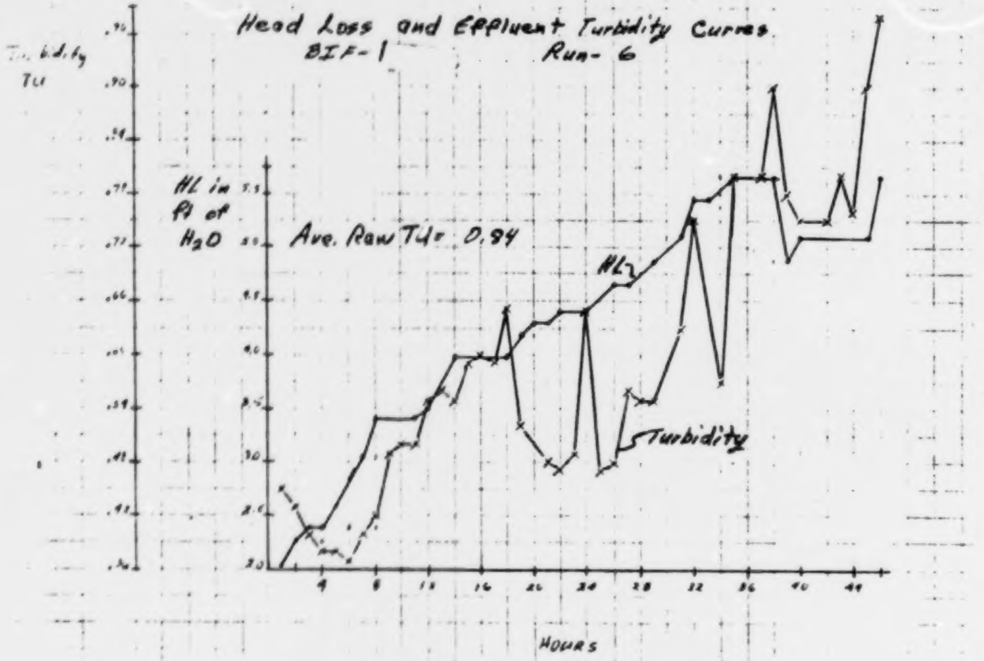

Head Loss and Effluent Turbidity Curves
BIF-1 Run-2


Head Loss and Effluent Turbidity Curves
BIF-1 Run-3

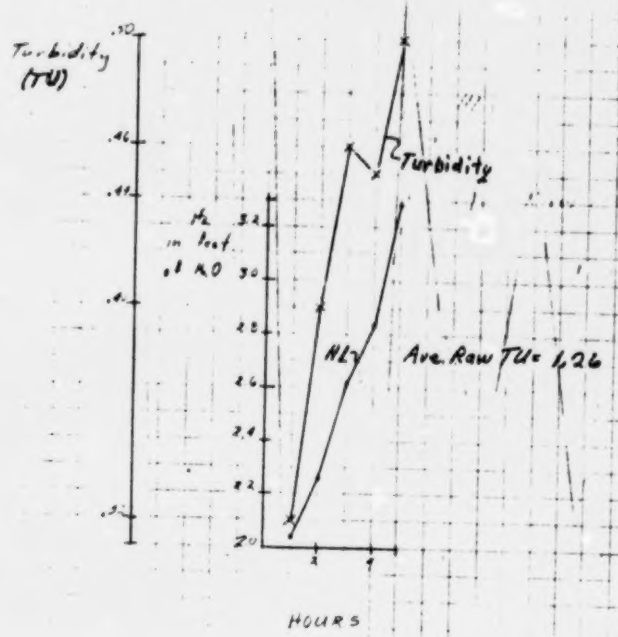

Head Loss and Effluent Turbidity Curves
BIF-1
Run-4
Turbidity (TU)
HL in feet of H₂O
Ave. Raw TU= 6.13
HL
Turbidity
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
.66
.54
.30
4
8
12
16
20
24
28
32
36
40
44
HOURS


Head Loss and Effluent Turbidity Curves
BIF-1
Run-5
Turbidity (TU)
HL in feet of H₂O
Ave. Raw TU= 0.86
HL
Turbidity
1.40
1.30
1.20
1.10
1.00
.90
.80
.70
.60
.50
.40
.30
10
9
8
7
6
5
4
3
2
2
4
6
8
10
12
14
16
18
HOURS

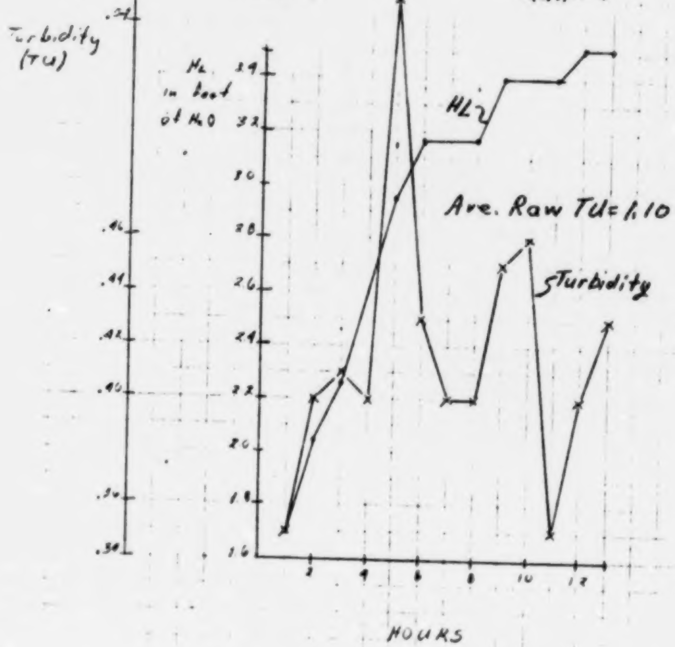

Head Loss and Effluent Turbidity Curves
BIF-1
Run-7
Turbidity (TU)
HL in feet of H₂O
0
1
2
3
4
5
6
7
8
HL
Turbidity
4
8
12
16
20
24
28
32
36
40
44
HOURS

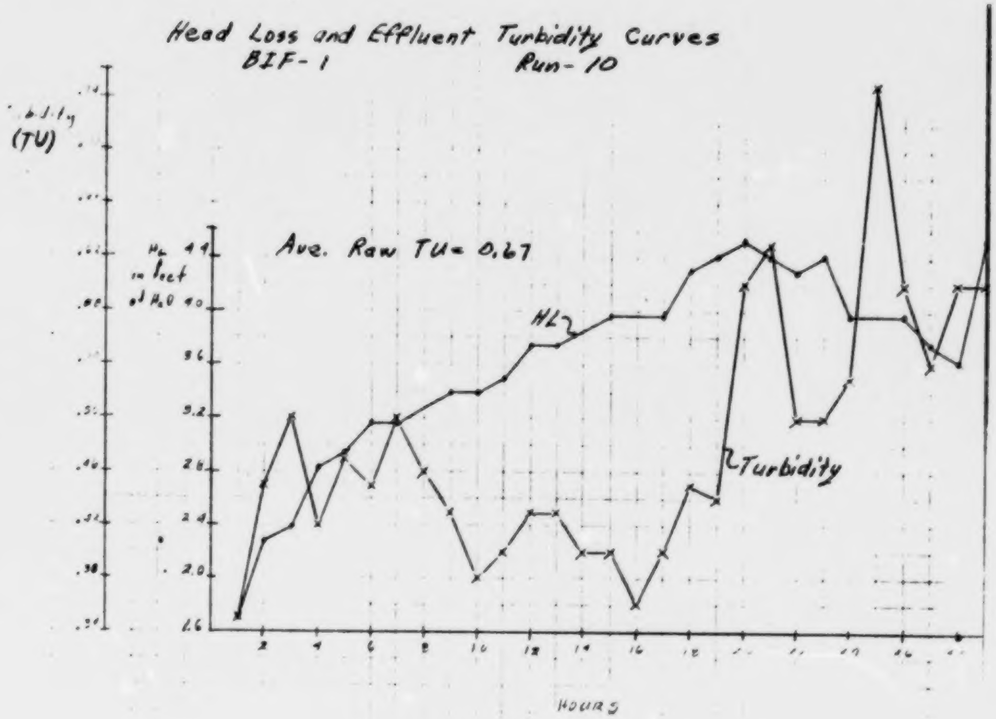

Head Loss and Effluent Turbidity Curves
BIF-1
Run-6
Turbidity TU
.90
HL in ft of H₂O
Ave. Raw TU = 0.94
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
HL
Turbidity
4
8
12
16
20
24
28
32
36
40
44
HOURS

Head Loss and Effluent Turbidity Curves
BIF-1 Run- 8

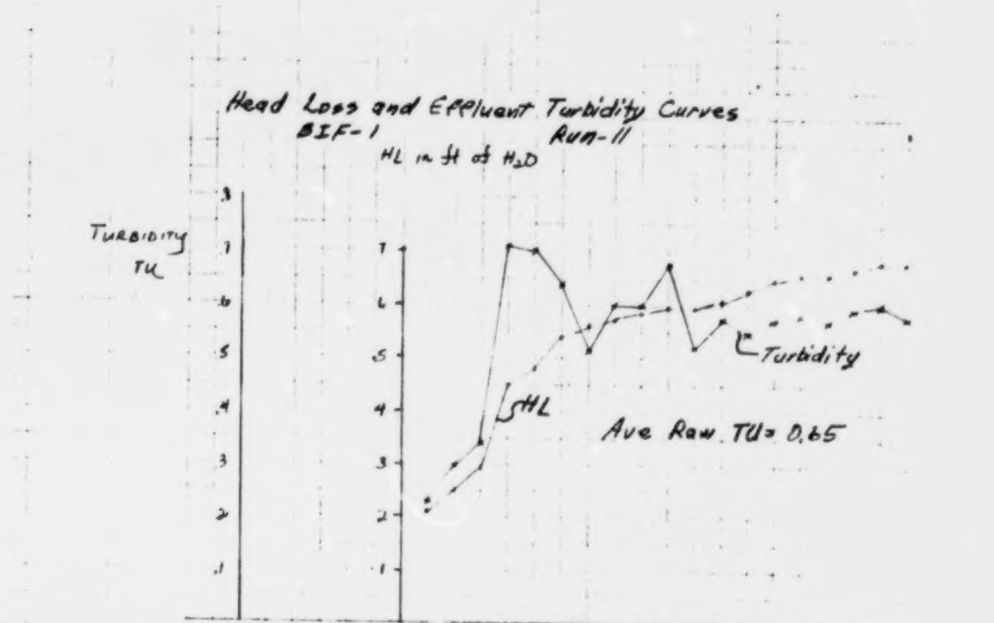


Head Loss and Effluent Turbidity Curves
BIF-1 Run- 9





Head Loss and Effluent Turbidity Curves
BIF-1 Run-10



Head Loss and Effluent Turbidity Curves
BIF-1 Run-11

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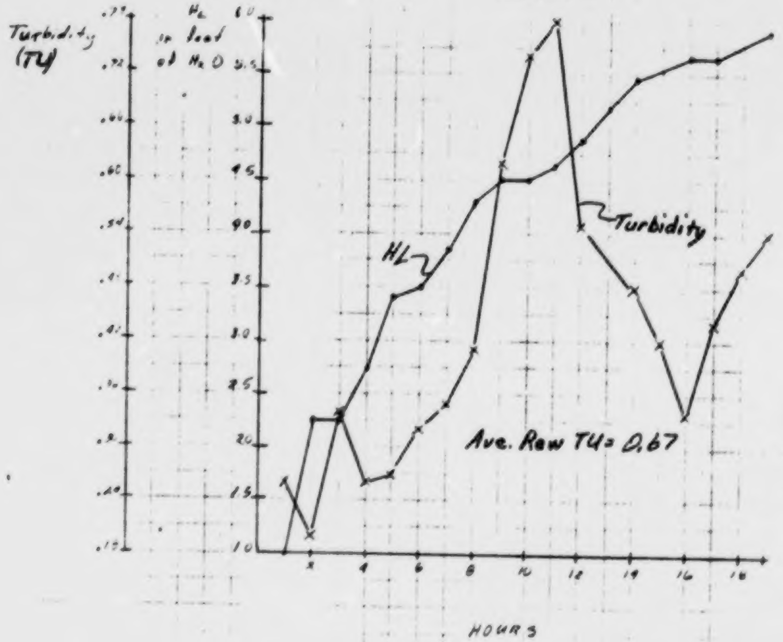
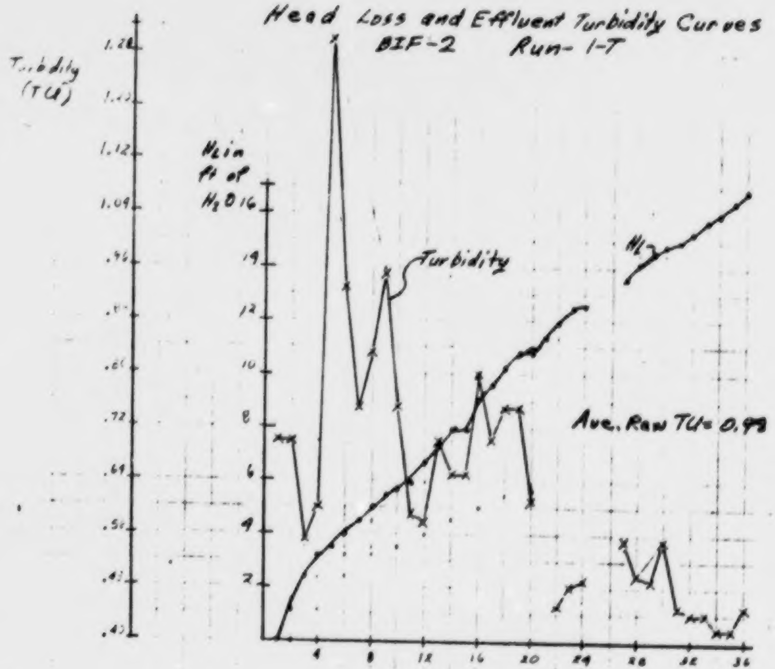
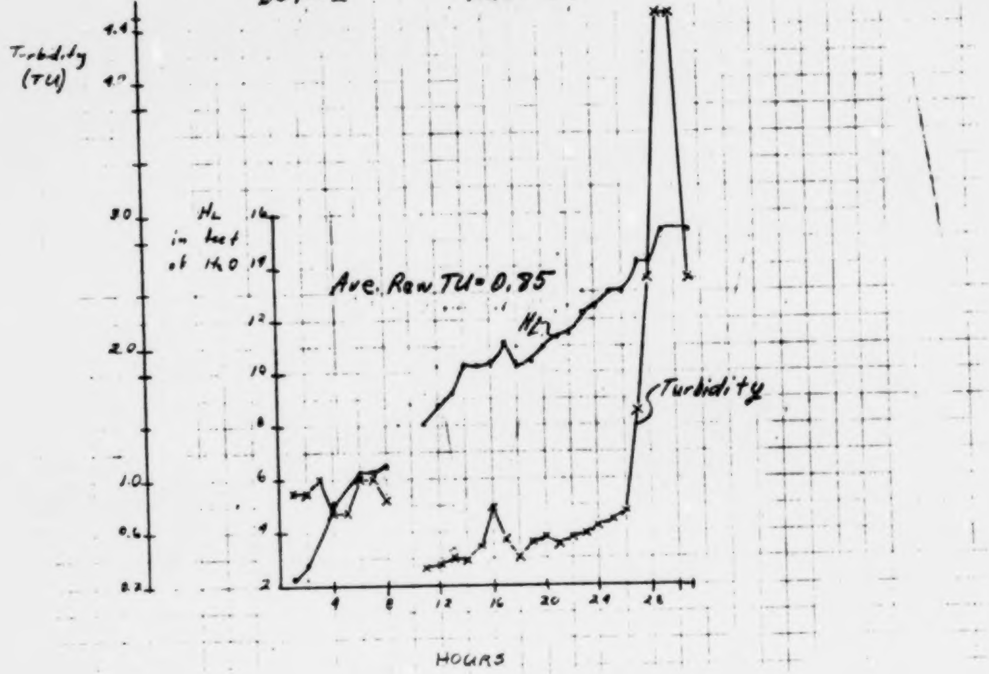
Head Loss and Effluent Turbidity Curves
BIF-1 Run-12



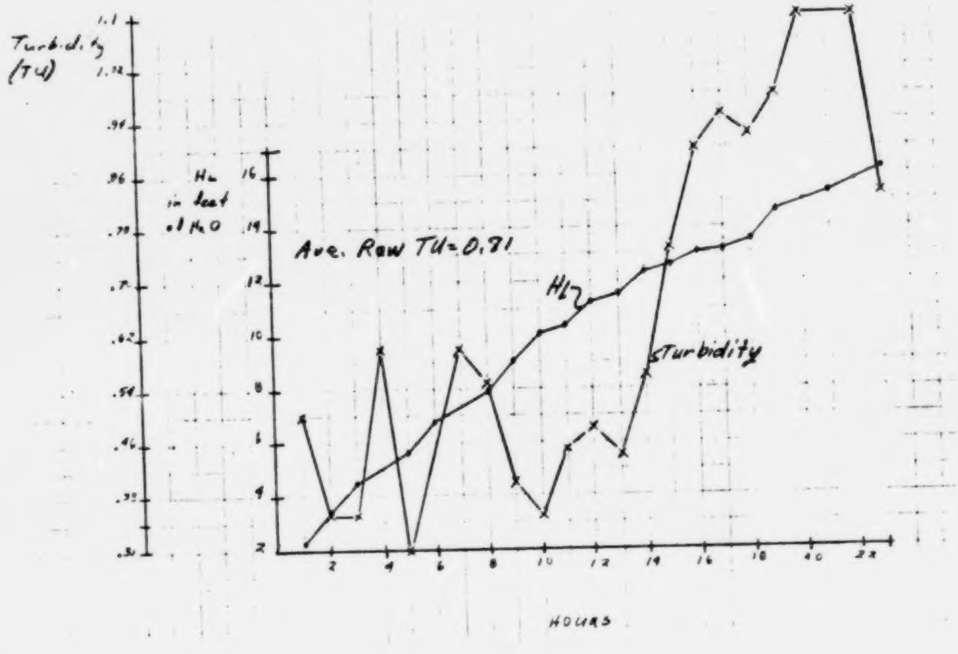
Head Loss and Effluent Turbidity Curves
BIF-2 Run-1-T

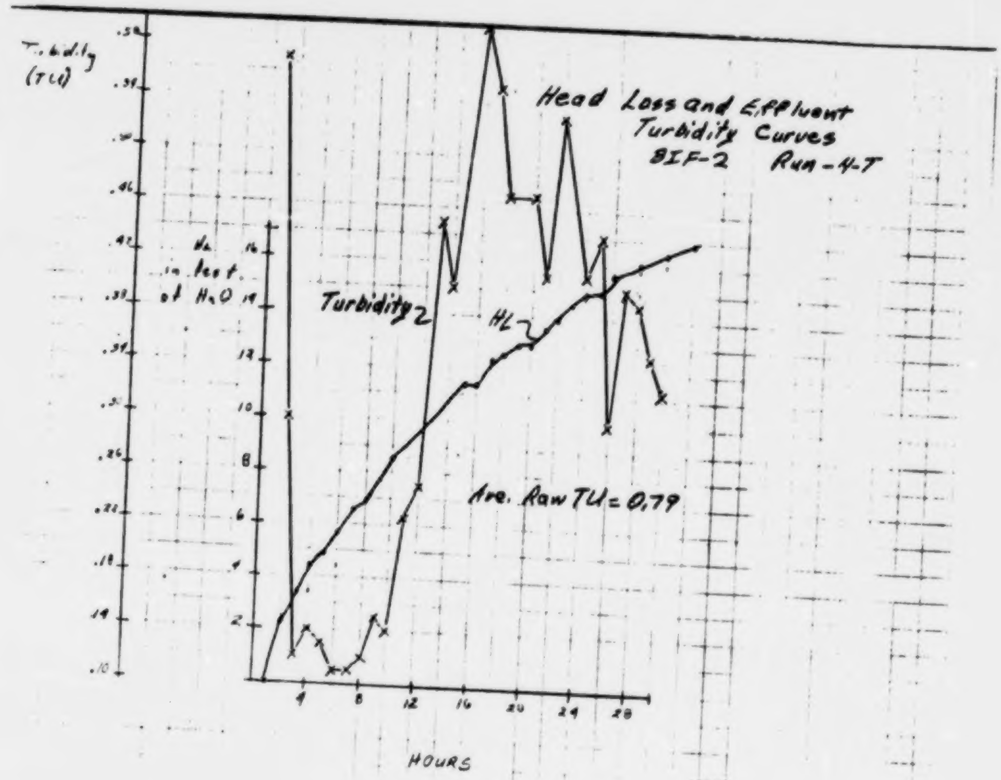


Head Loss and Effluent Turbidity Curves
BIF-2 Run- 2-T



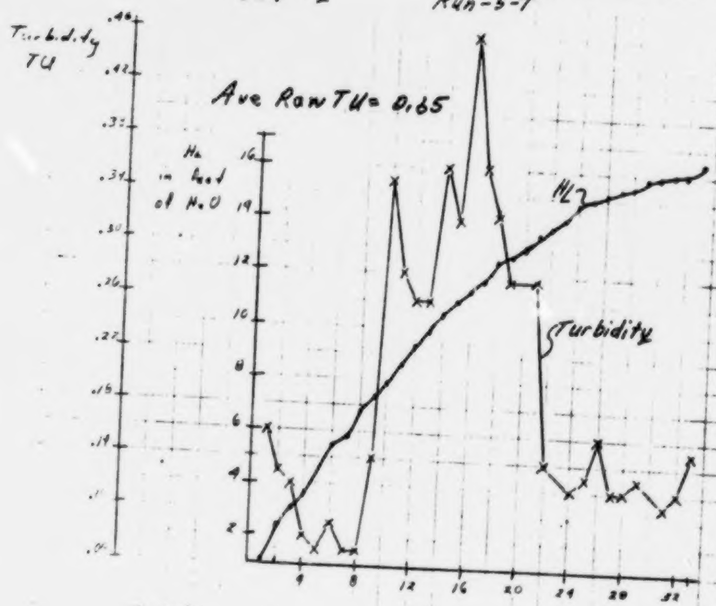
Head Loss and Effluent Turbidity Curves.
BIF-2 Run-3-T

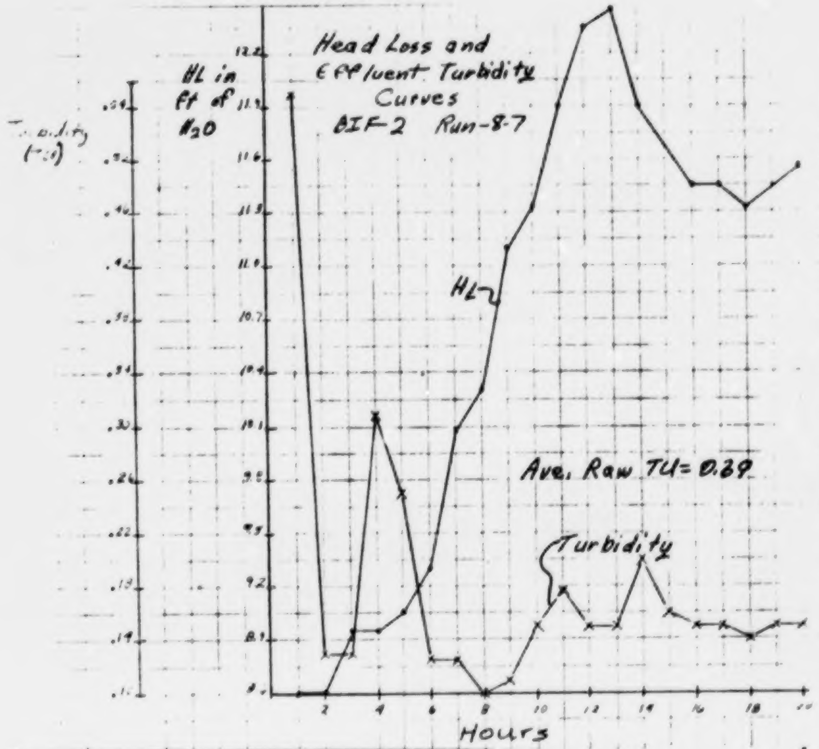




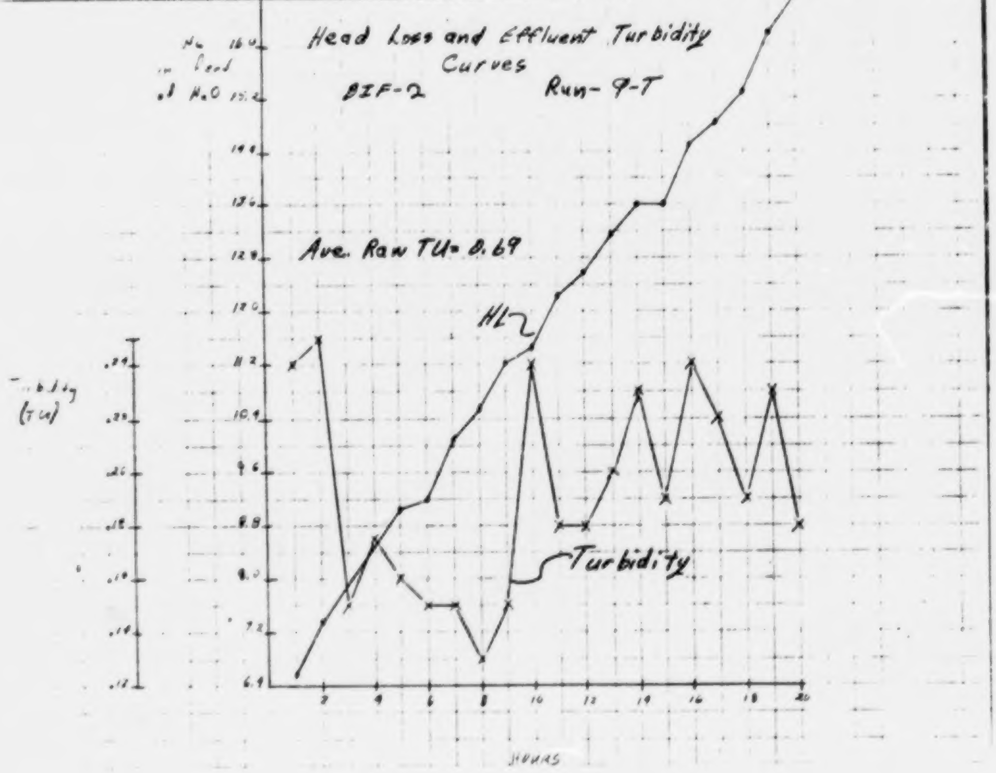
Head Loss and Effluent Turbidity Curves
BIF-2 Run-4-T

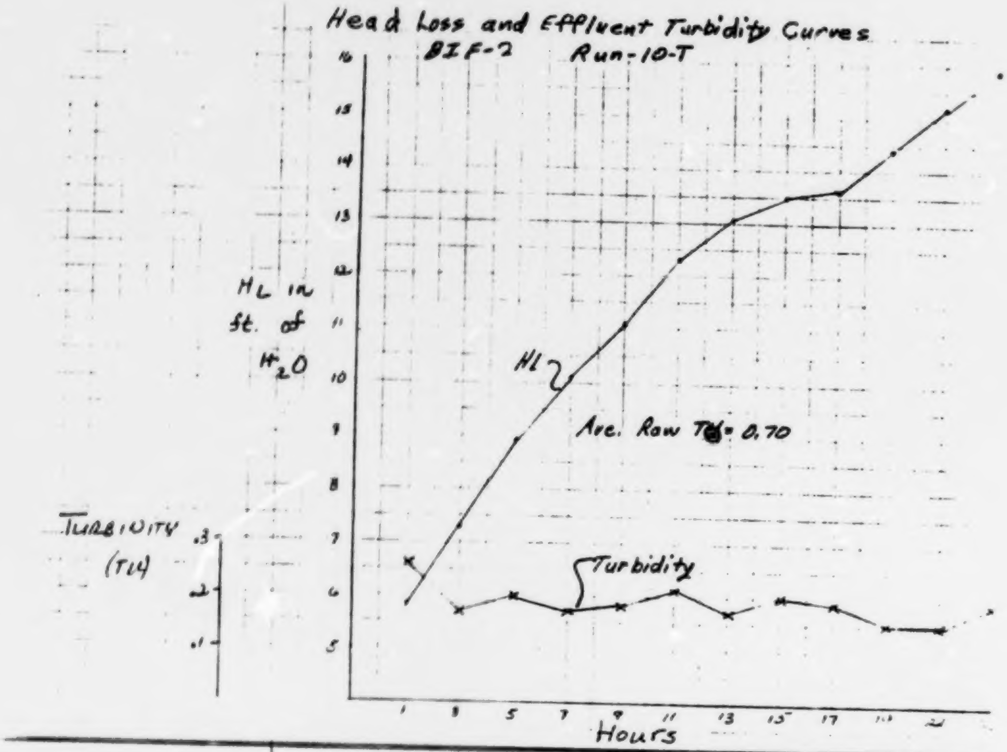
Head Loss and Effluent Turbidity Curves
BIF-2 Run-5-T



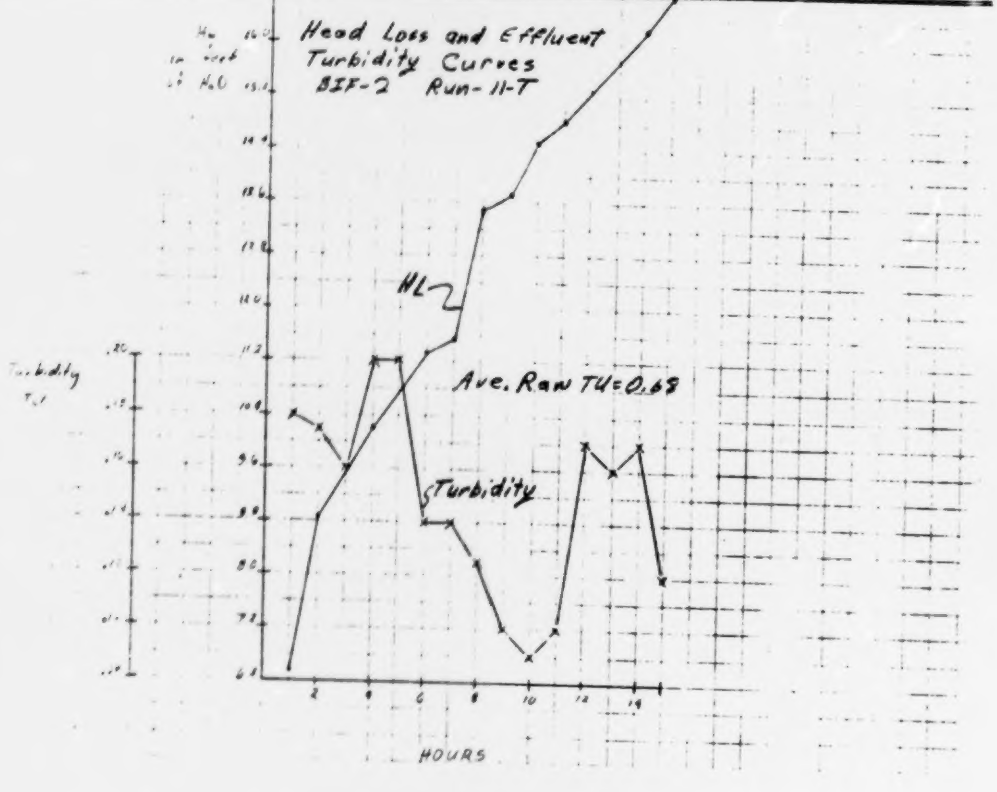


Ave Raw Turbidity 0.69

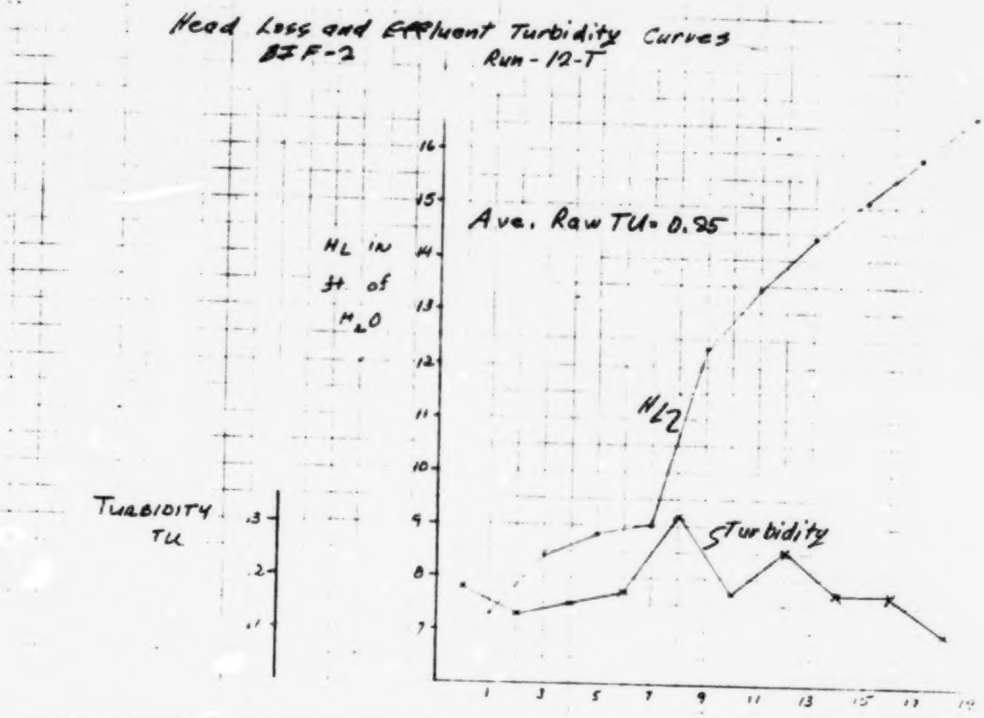


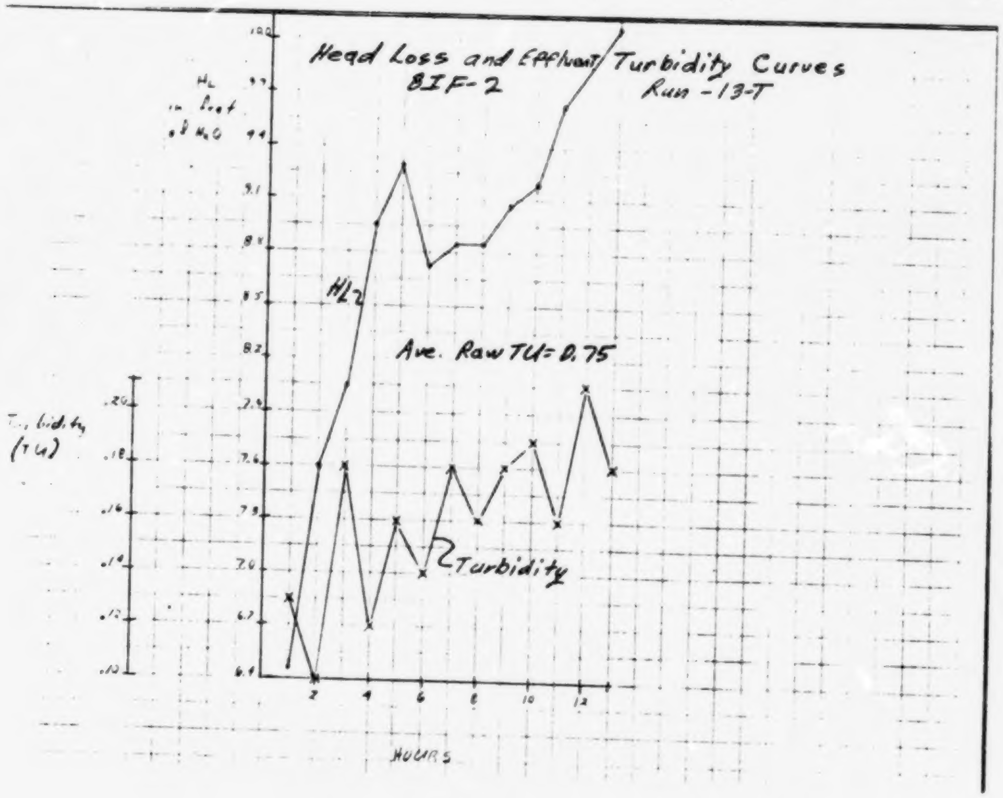


Head Loss and Effluent Turbidity Curves
BIF-2 Run-10-T



Head Loss and Effluent Turbidity Curves
BIF-2 Run-11-T


Head Loss and Effluent Turbidity Curves
BIF-2
Run-12-T
Ave. Raw TU= 0.85
HL in ft. of H2O
16
15
14
13
12
11
10
9
8
7
TURBIDITY TU
.3
.2
.1
HL
Turbidity
1
3
5
7
9
11
13
15
17
19


Head Loss and Effluent Turbidity Curves
BIF-2
Run-13-T
HL in feet of H2O
10.0
9.7
9.4
9.1
8.8
8.5
8.2
7.9
7.6
7.3
7.0
6.7
6.4
HL
Ave. Raw TU= 0.75
Turbidity (TU)
.20
.18
.16
.14
.12
.10
Turbidity
2
4
6
8
10
12
HOURS

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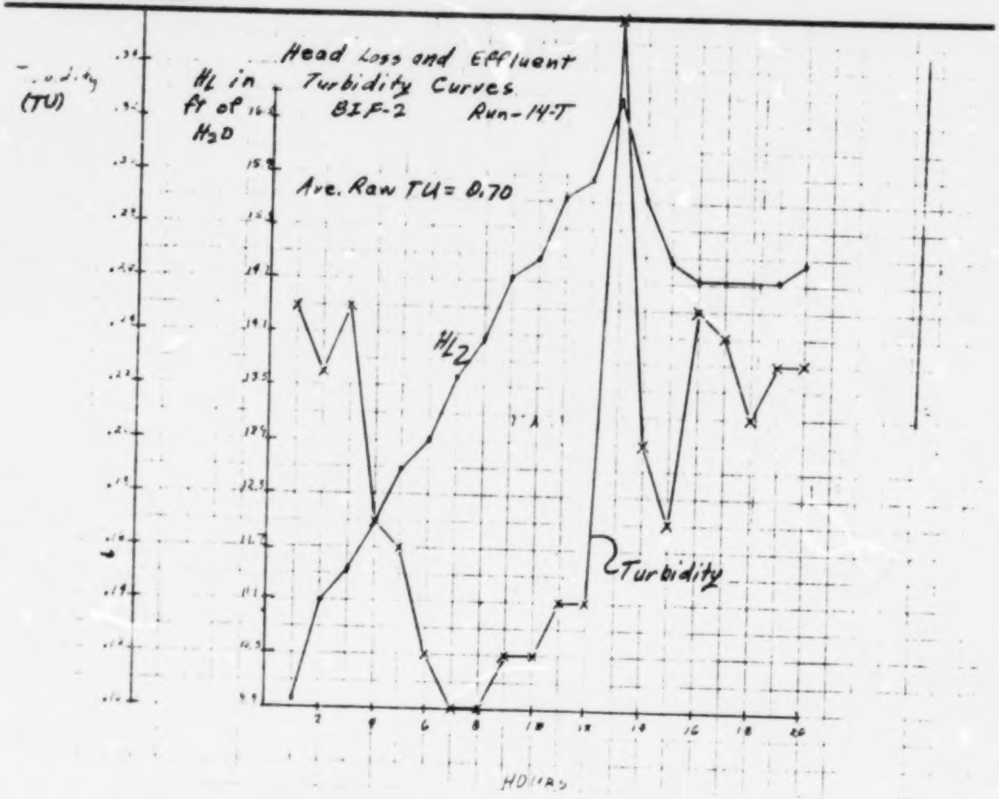
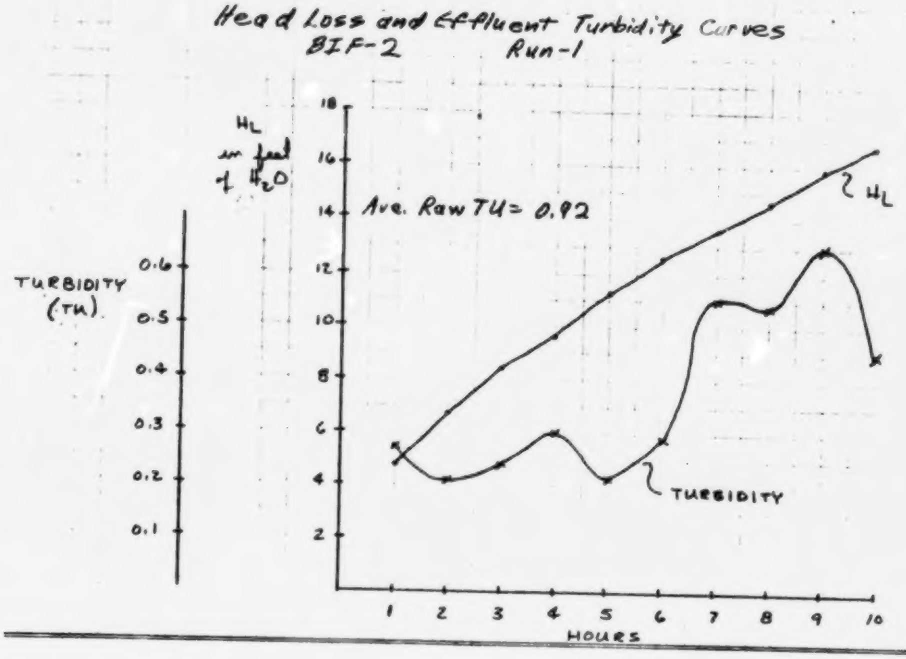
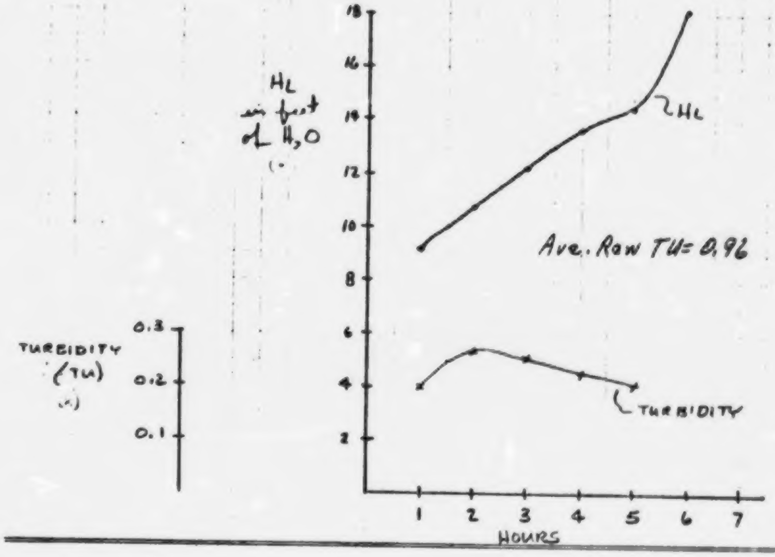
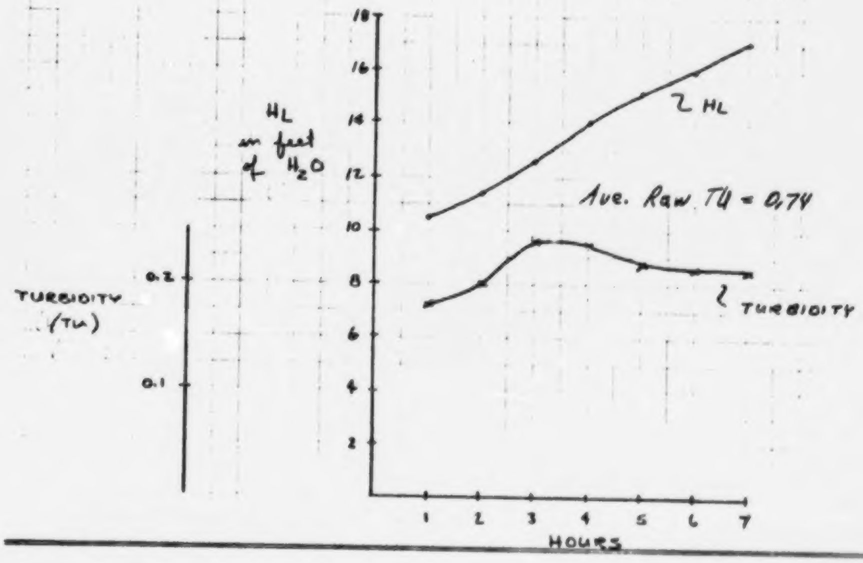




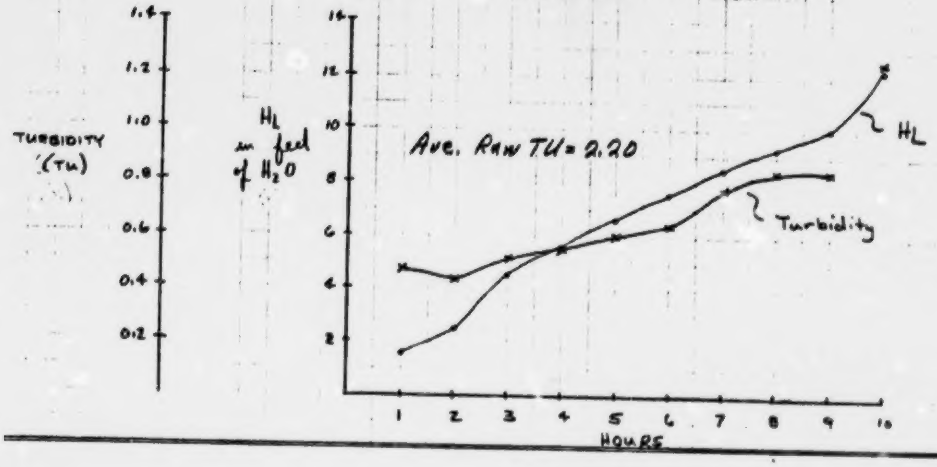
Head Loss and Effluent Turbidity Curves
BIF-2 Run - 2



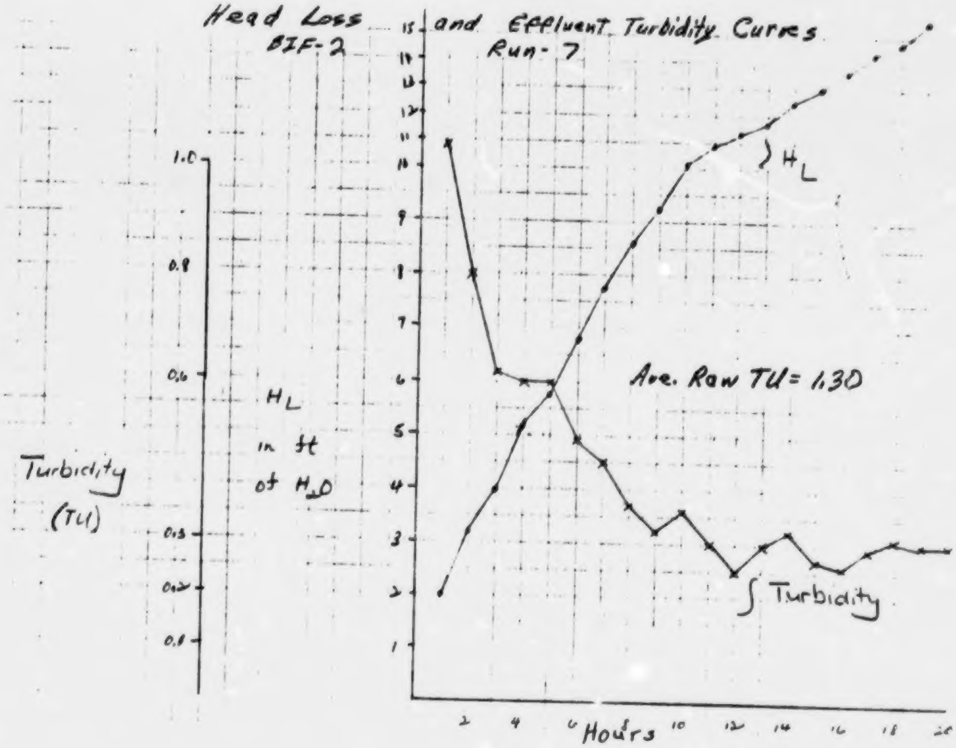
Head Loss and Effluent Turbidity Curves
BIF-2 Run - 4

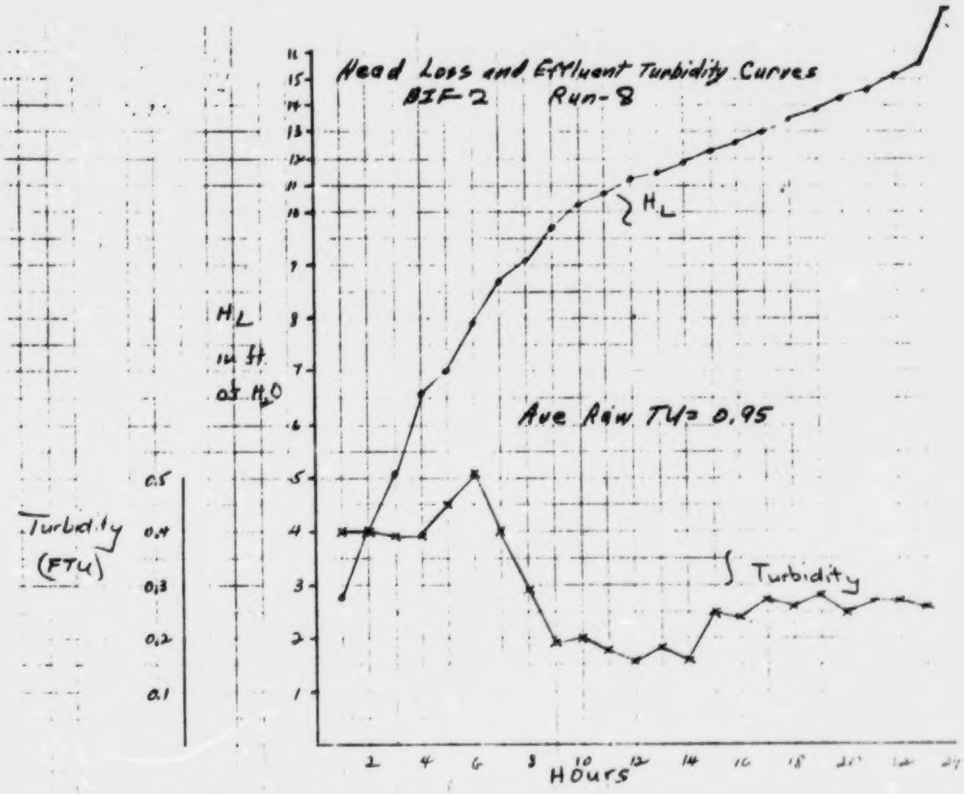


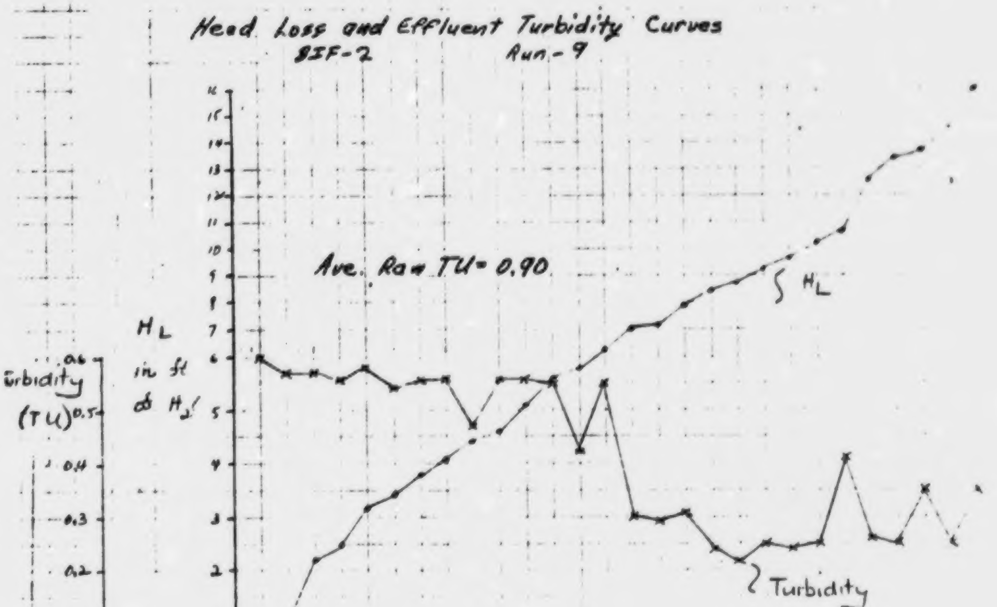
Head Flow and Effluent Turbidity Curves
BIF-2 Run-6



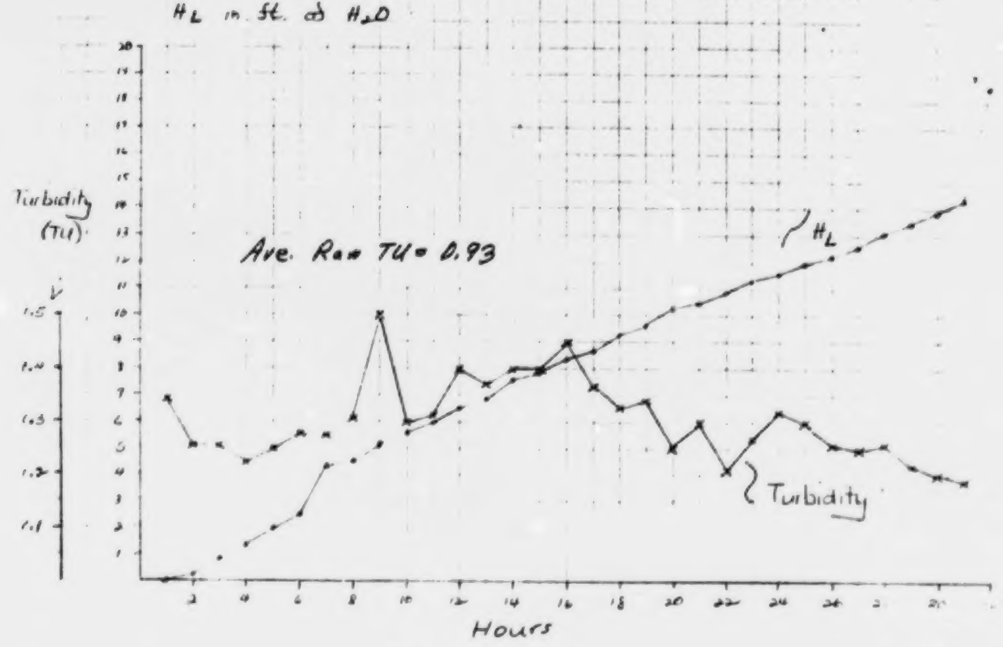
Head Loss and Effluent Turbidity Curves
BIF-2 Run-7



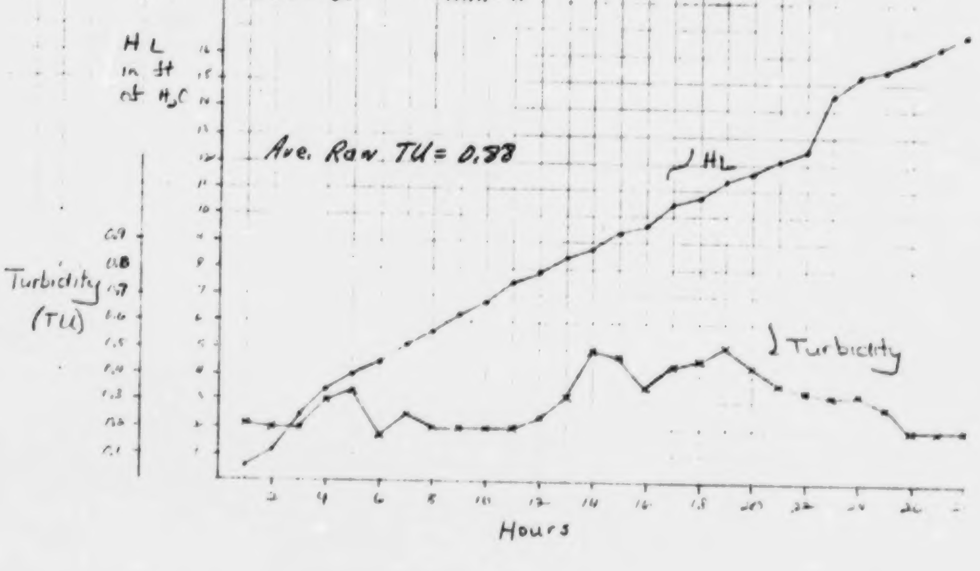

Head Loss and Effluent Turbidity Curves
BIF-2 Run-8


Head Loss and Effluent Turbidity Curves
BIF-2 Run-9

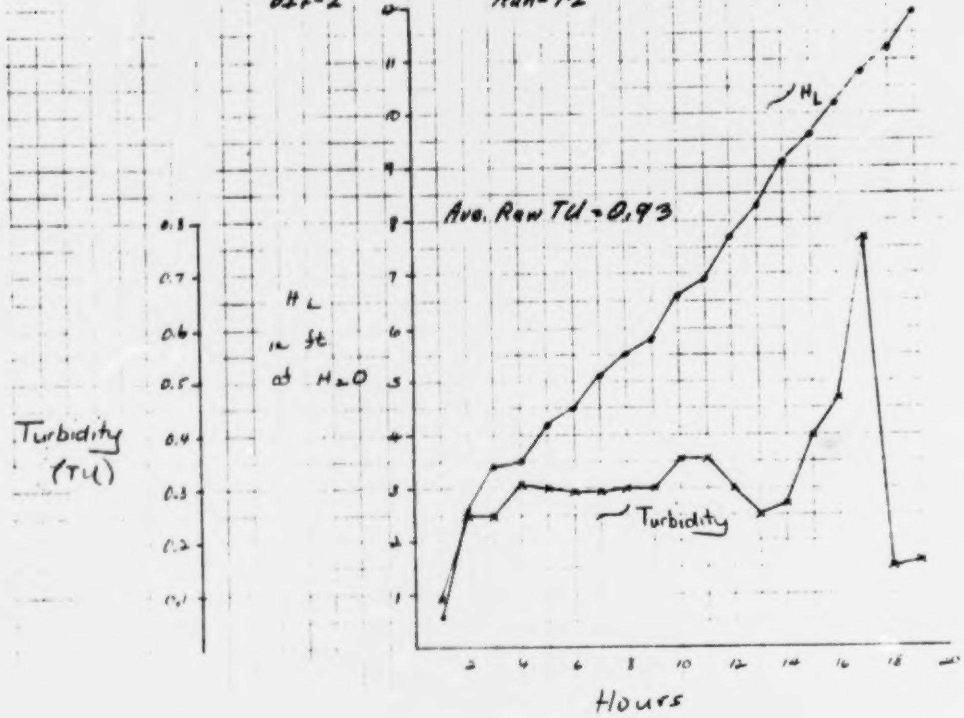
Head Loss and Effluent Turbidity Curves
BIF-2 Run-10



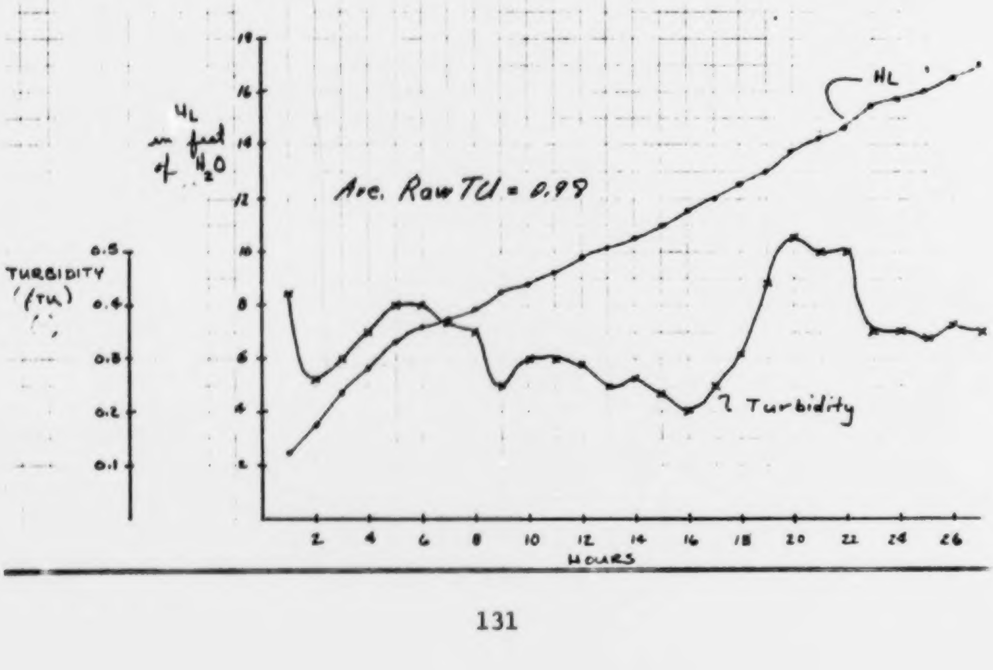
Head Loss and Effluent Turbidity Curves
BIF 2 Run-11



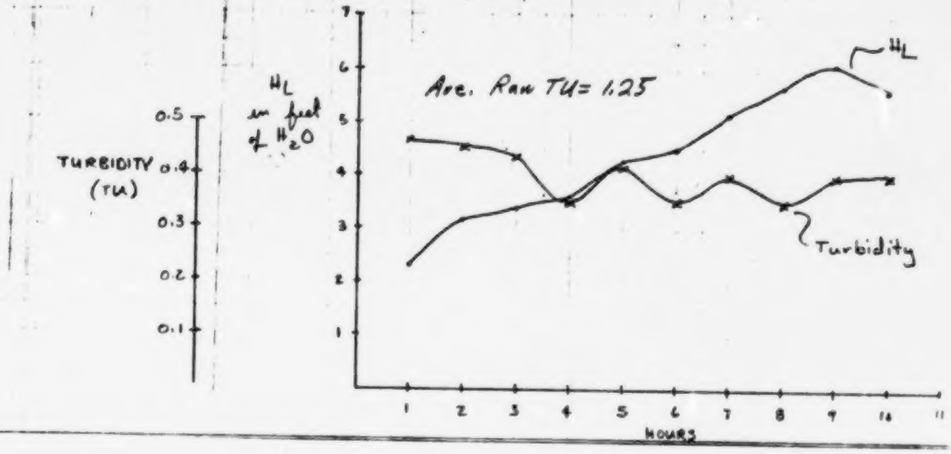
Head Loss and Effluent Turbidity Curves
BIF-2 Run-12



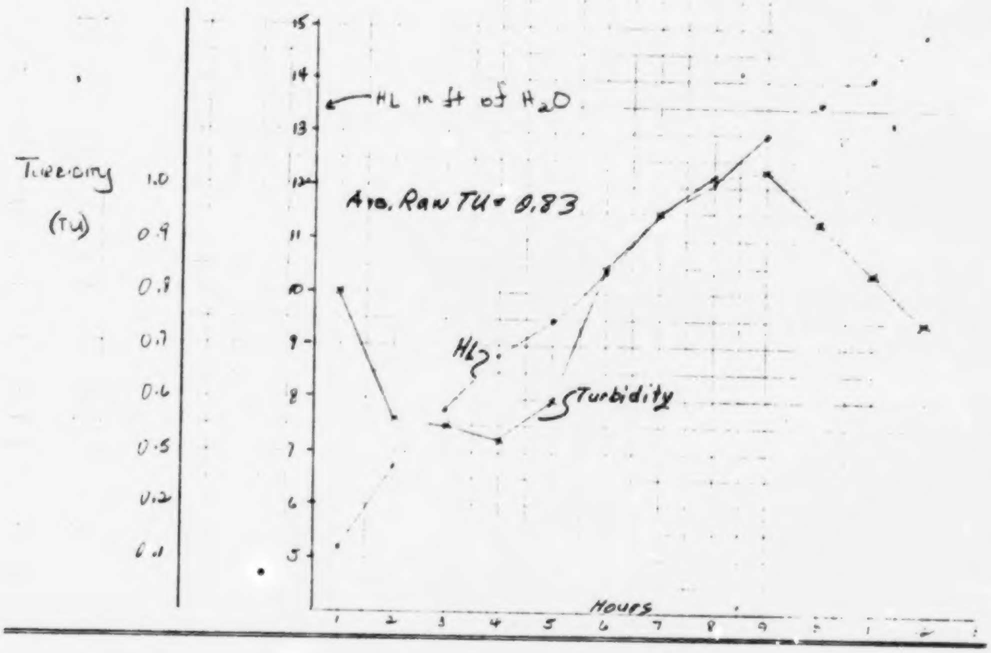
Head Loss and Effluent Turbidity Curves
BIF-2 Run-13

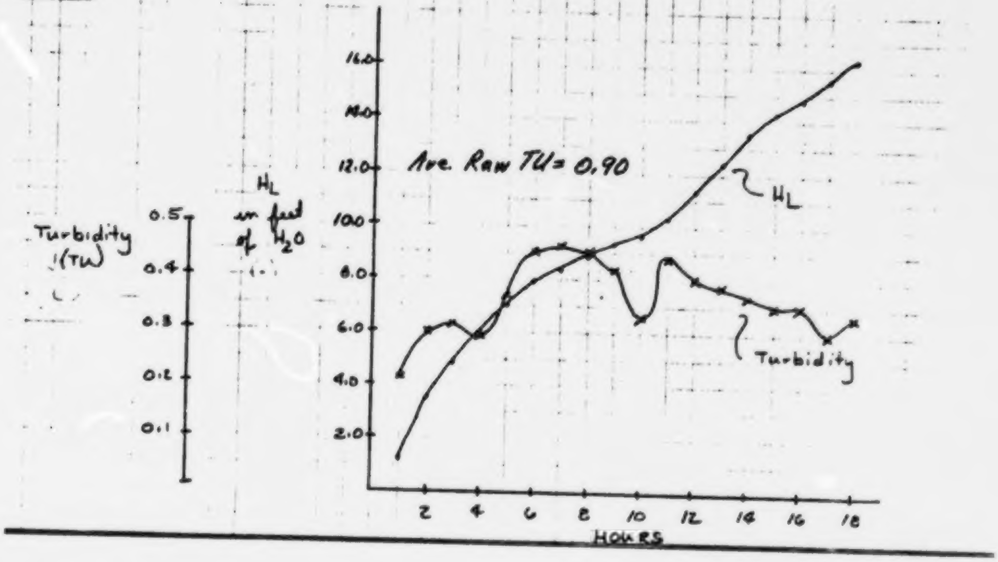


Head Loss and Effluent Turbidity Curves
BIF-2 Run-14

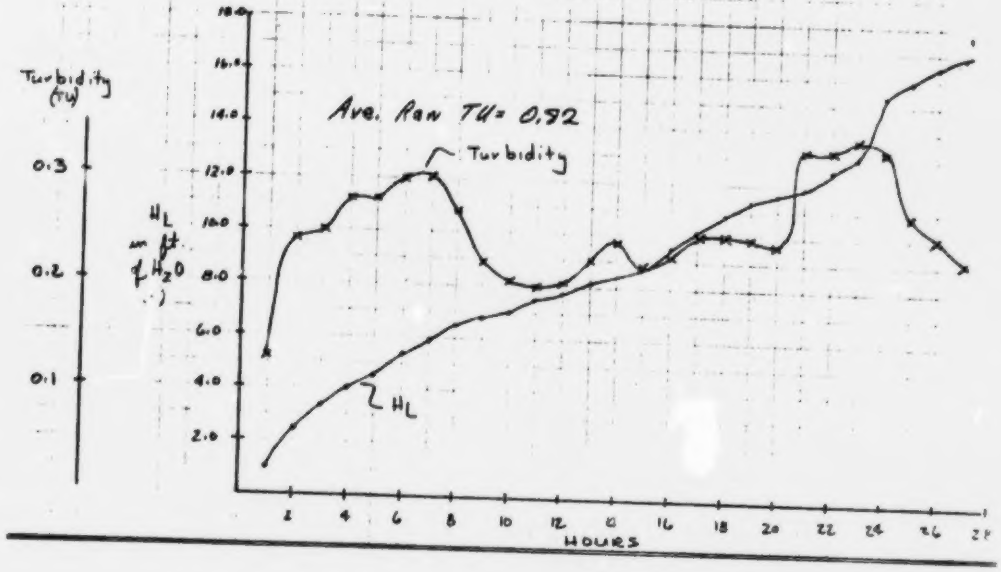


Head Loss and Effluent Turbidity Curves
BIF-2 Run-15

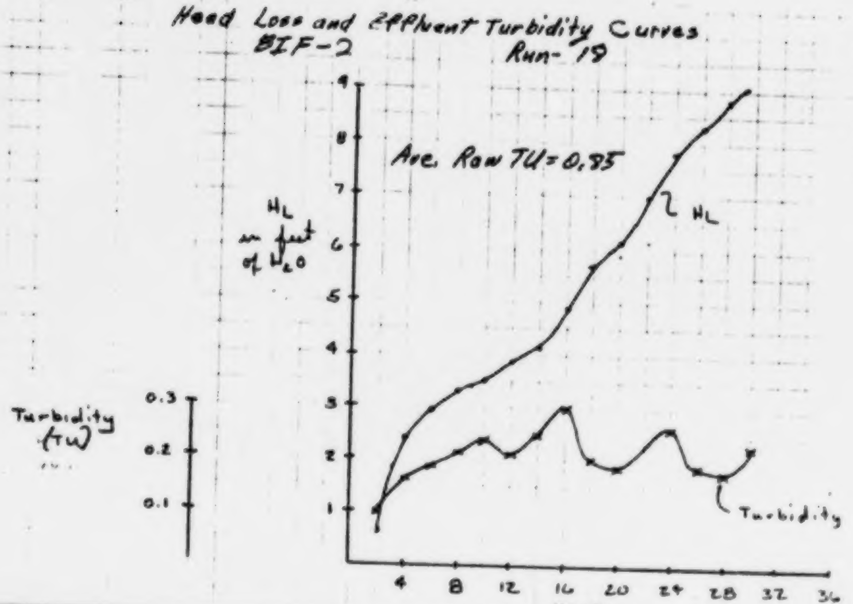




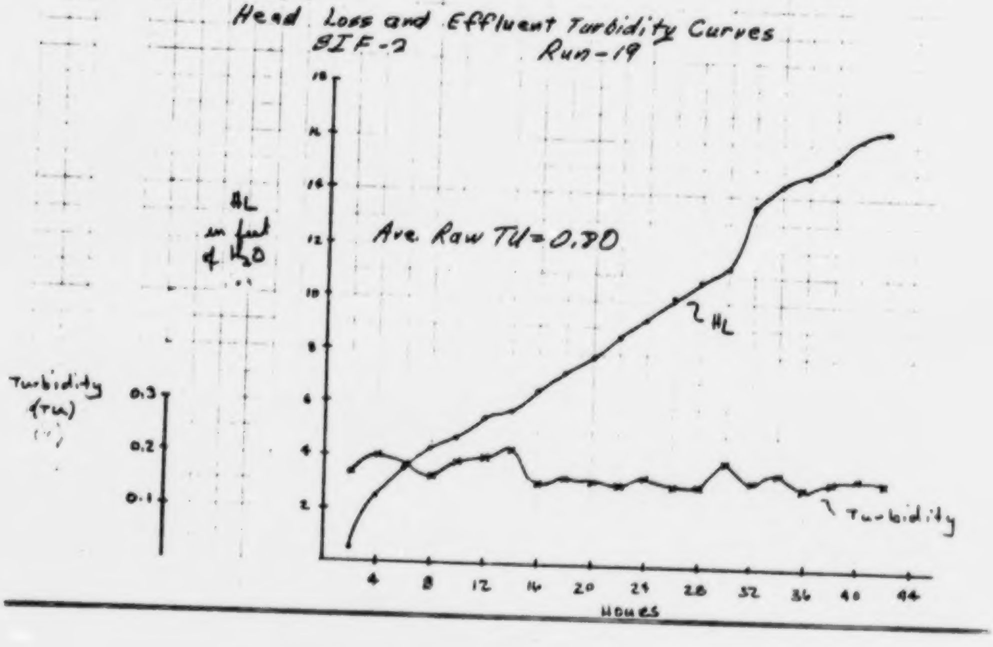
Head Loss and Effluent Turbidity Curves
BIF-2 Run-16



Head Loss and Effluent Turbidity Curves
BIF-2 Run-17

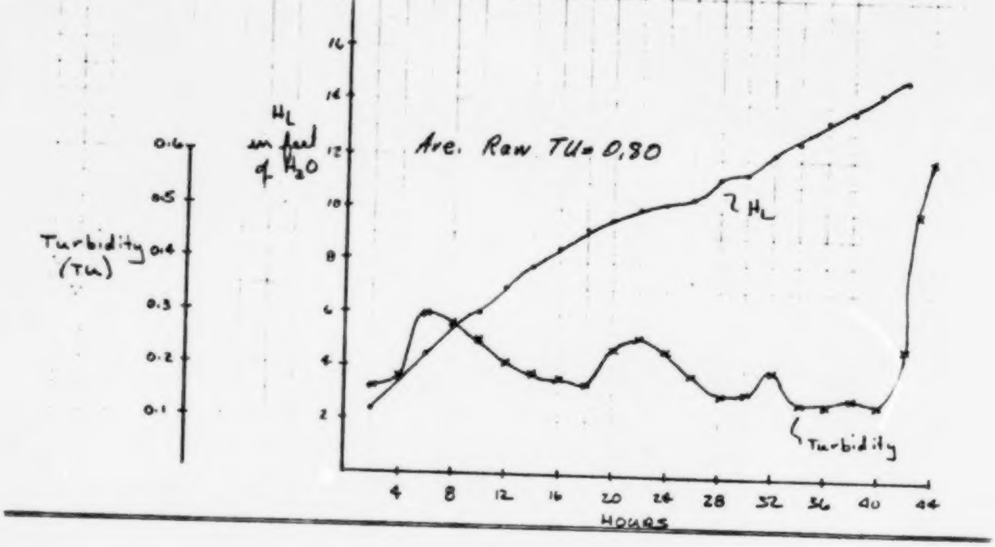


Head Loss and Effluent Turbidity Curves
BIF-2 Run-18

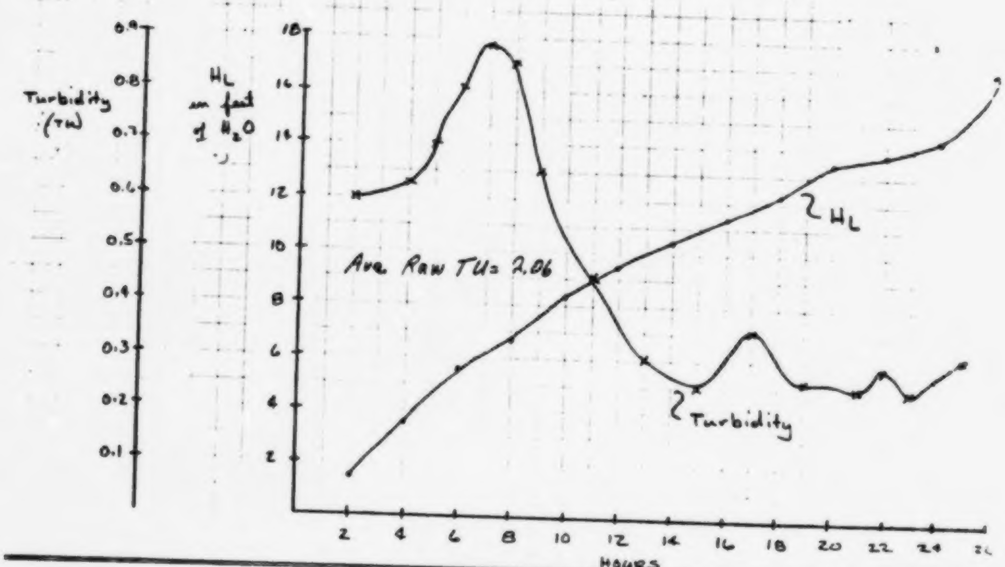


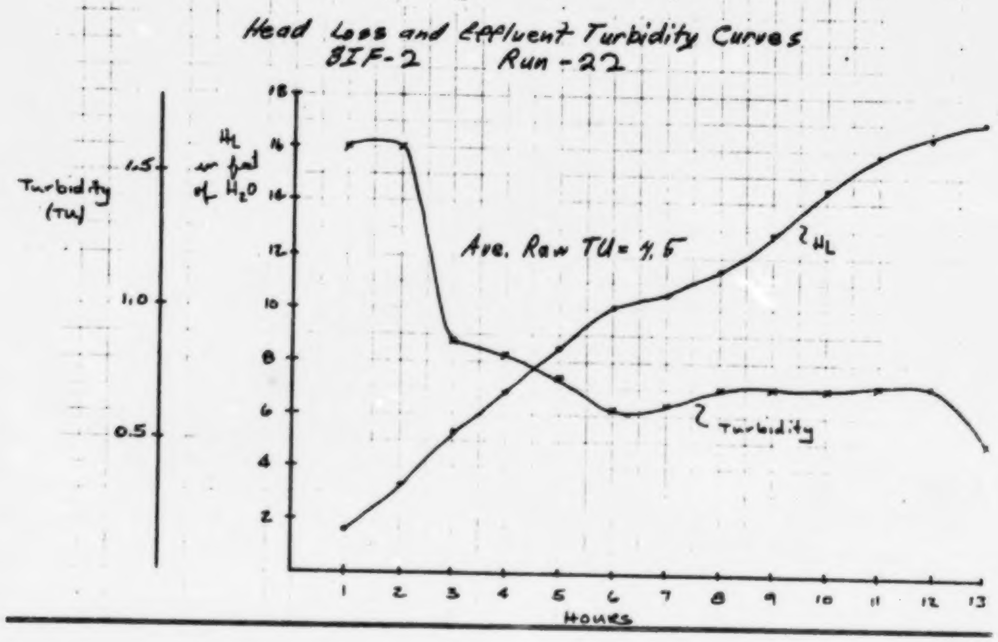
Head Loss and Effluent Turbidity Curves
BIF-2 Run-19

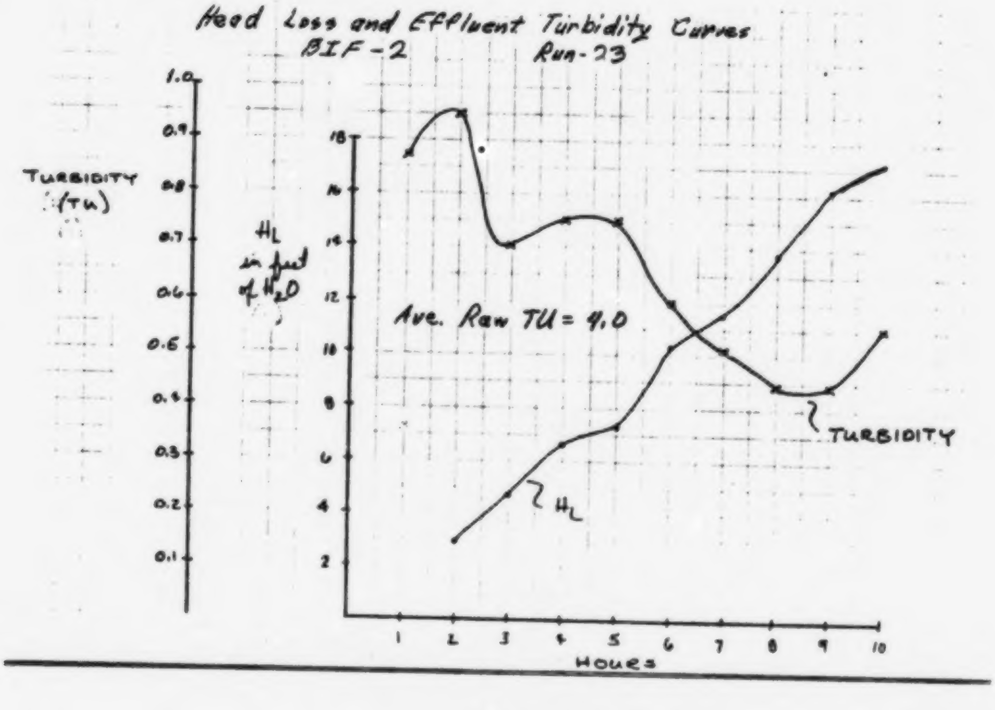
Head Loss and Effluent Turbidity Curves
BIF-2 Run-20



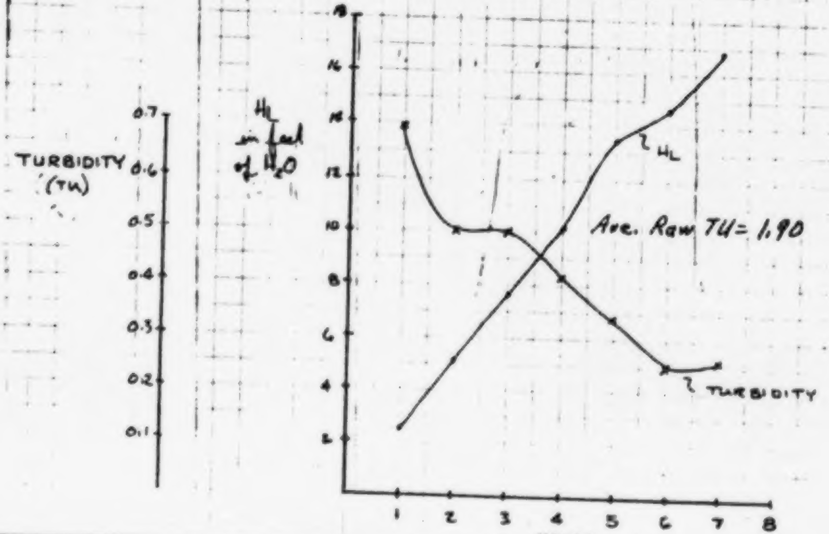
Head Loss and Effluent Turbidity Curves



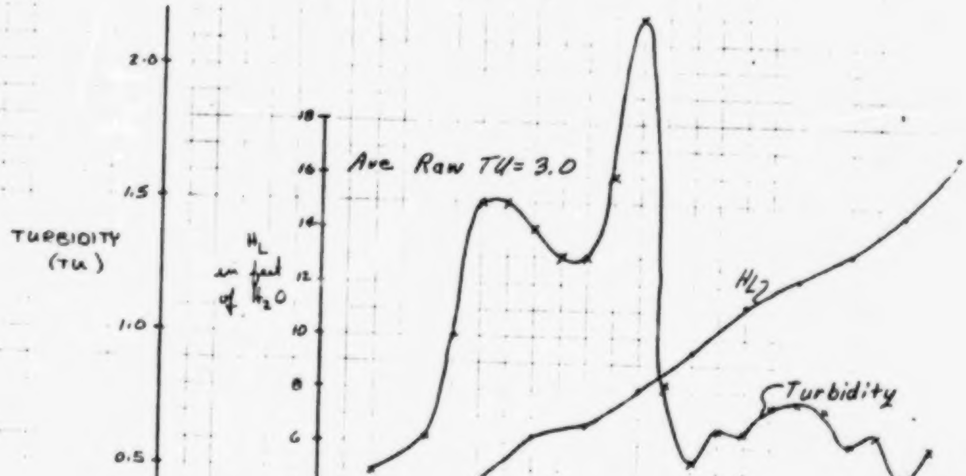

Head Loss and Effluent Turbidity Curves
BIF-2 Run-22

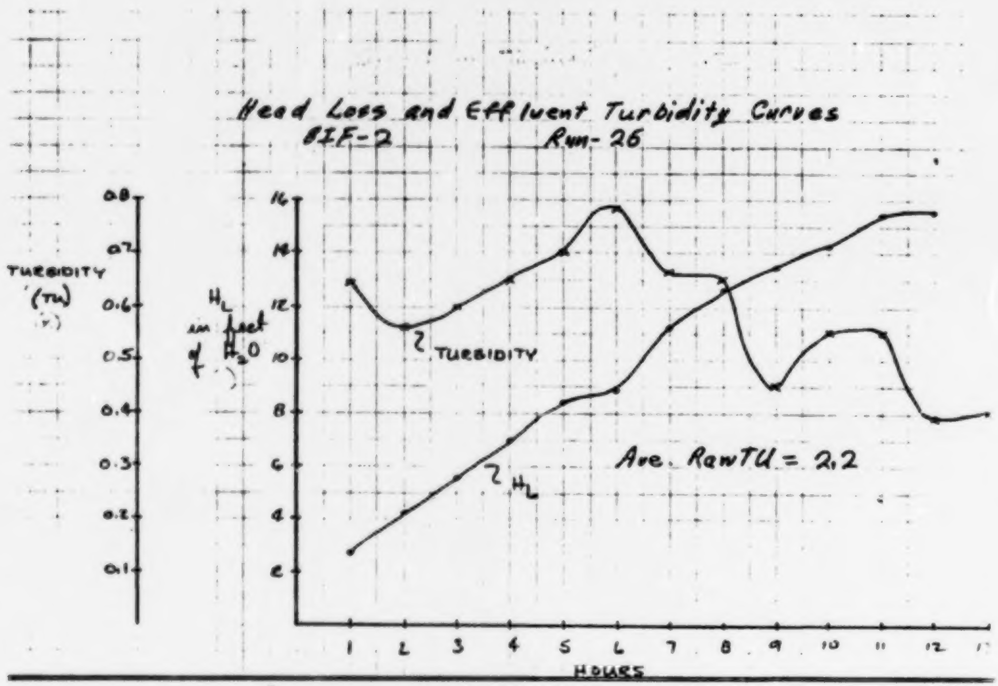

Head Loss and Effluent Turbidity Curves
BIF-2 Run-23

Head Loss and Effluent Turbidity Curves
BIF-2 Run-24

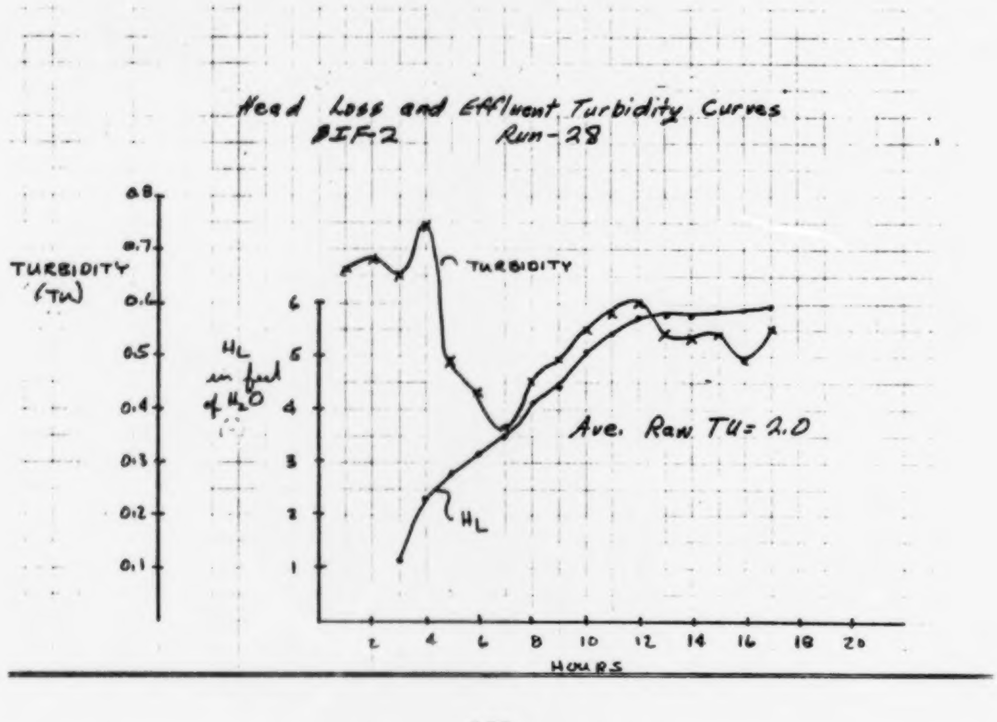


Head Loss and Effluent Turbidity Curves
BIF-2 Run-25



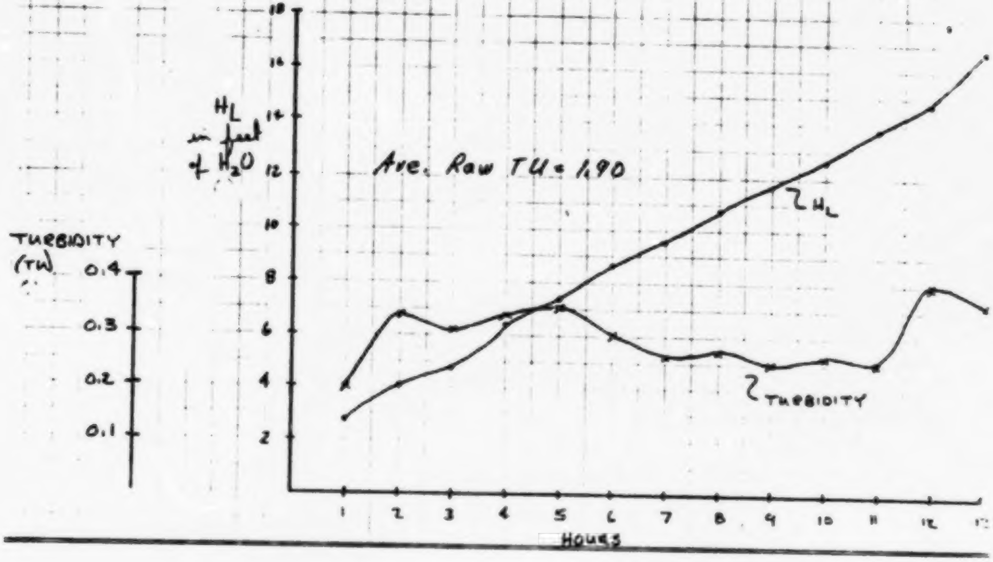


Head Loss and Effluent Turbidity Curves
BIF-2 Run-26

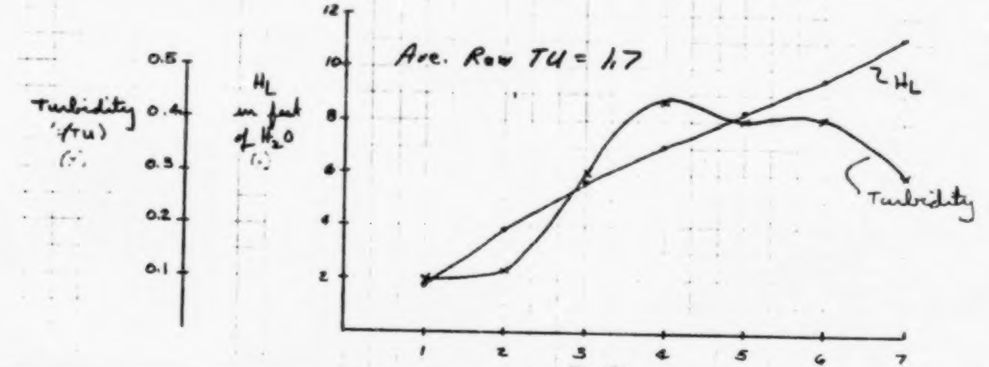


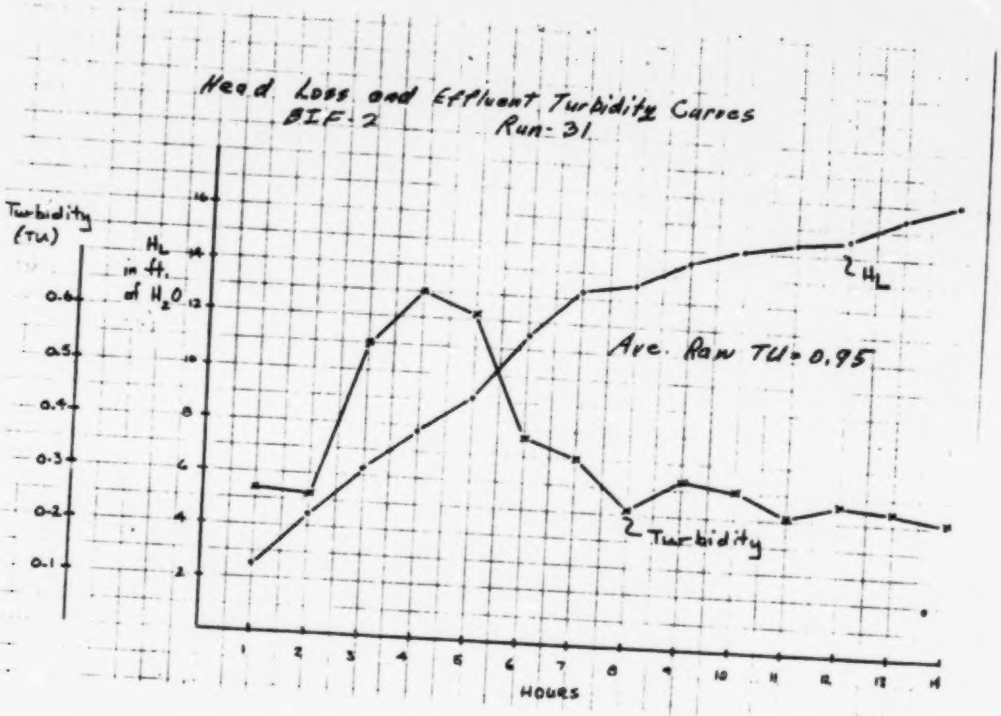
Head Loss and Effluent Turbidity Curves
BIF-2 Run-28

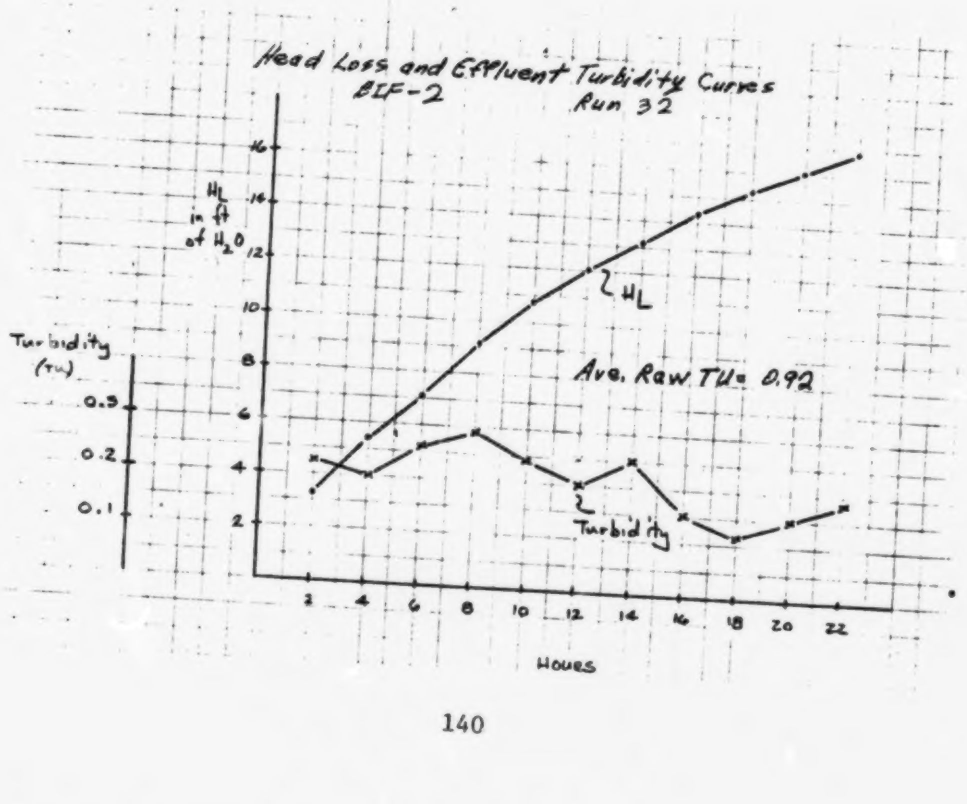
Head Loss and Effluent Turbidity Curves
BIF-2 Run-29

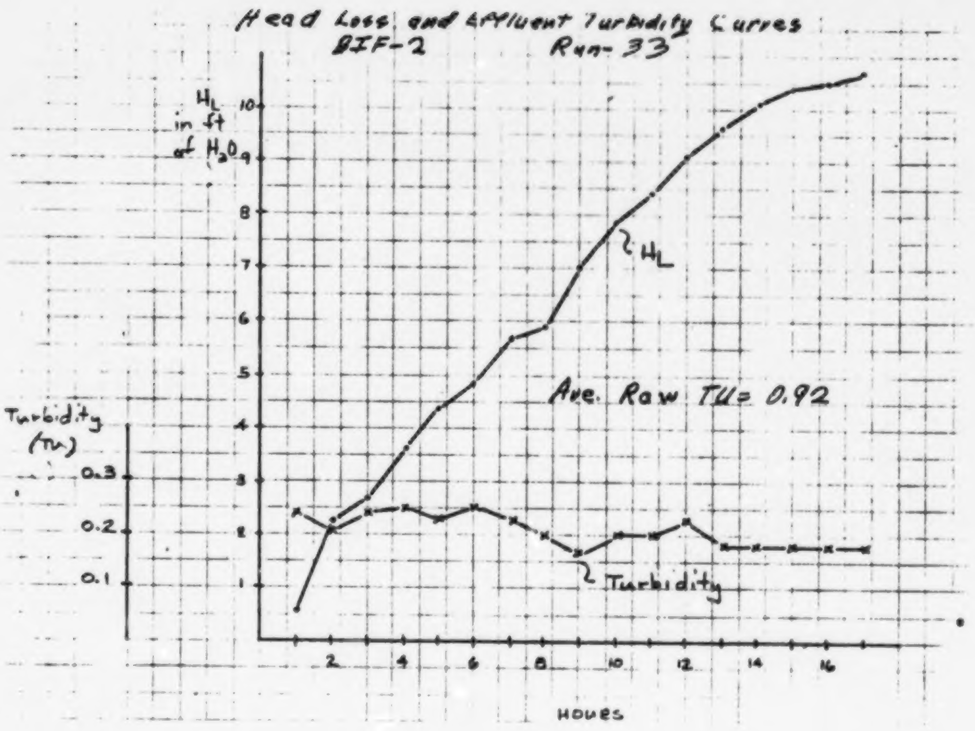


Head Loss and Effluent Turbidity Curves
BIF-2 Run-30

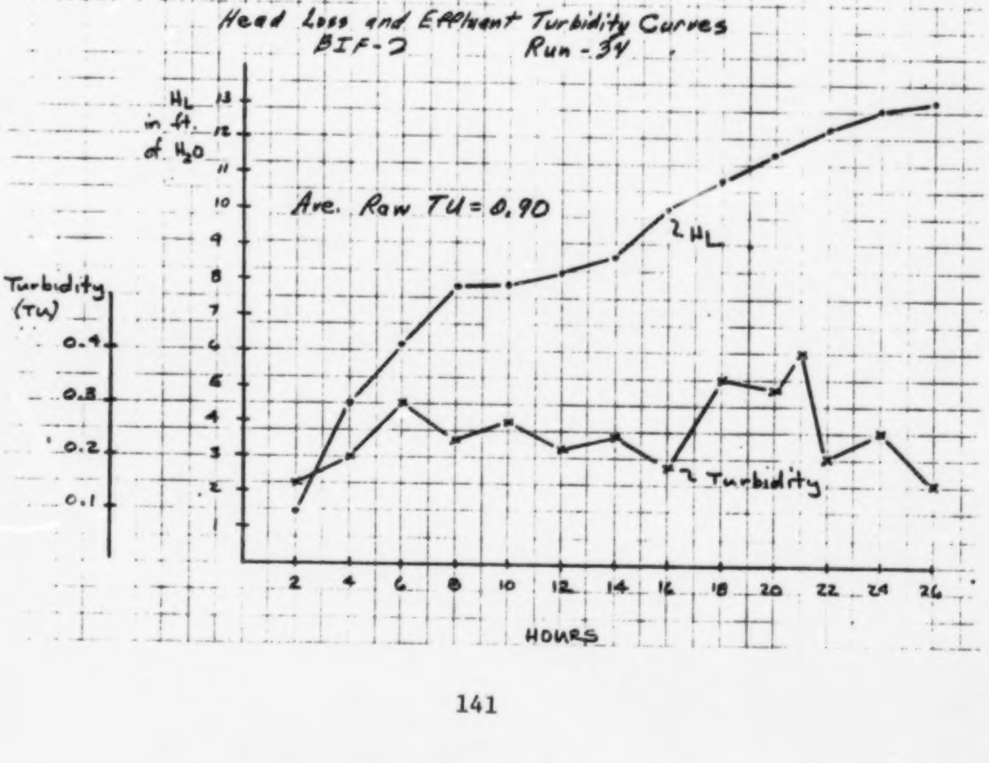



Head Loss and Effluent Turbidity Curves
BIF-2
Run-31
Turbidity (TU)
0.6
0.5
0.4
0.3
0.2
0.1
H_L in ft. of H_2O
16
14
12
10
8
6
4
2
Ave. Raw TU = 0.95
H_L
Turbidity
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Hours

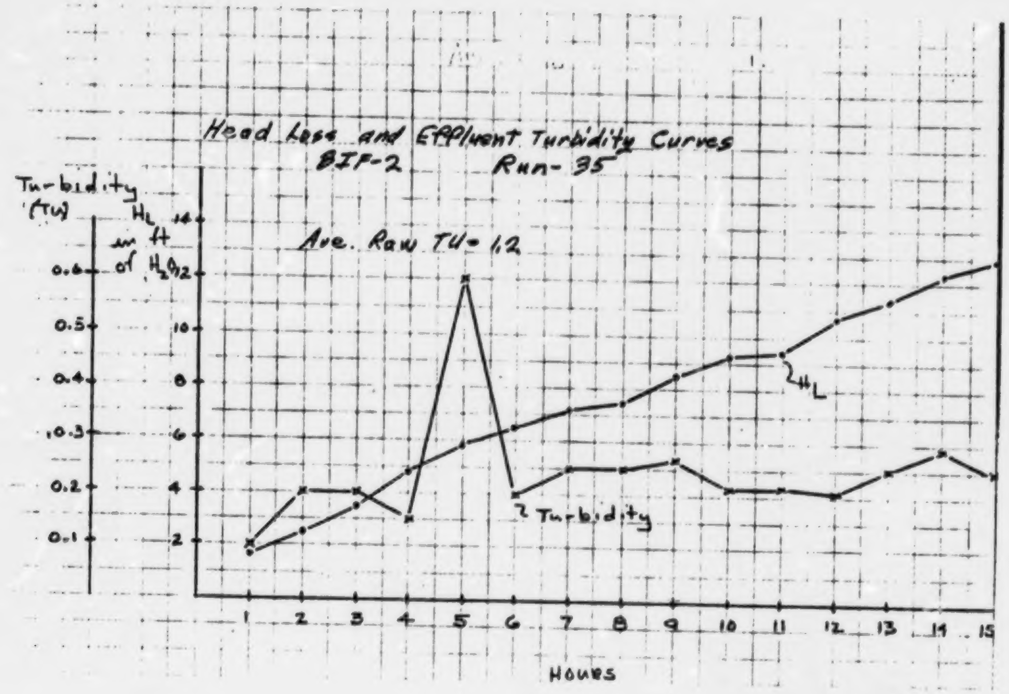

Head Loss and Effluent Turbidity Curves
BIF-2
Run 32
H_L in ft of H_2O
16
14
12
10
8
6
4
2
Turbidity (TU)
0.3
0.2
0.1
Ave. Raw TU = 0.92
H_L
Turbidity
2
4
6
8
10
12
14
16
18
20
22
Hours

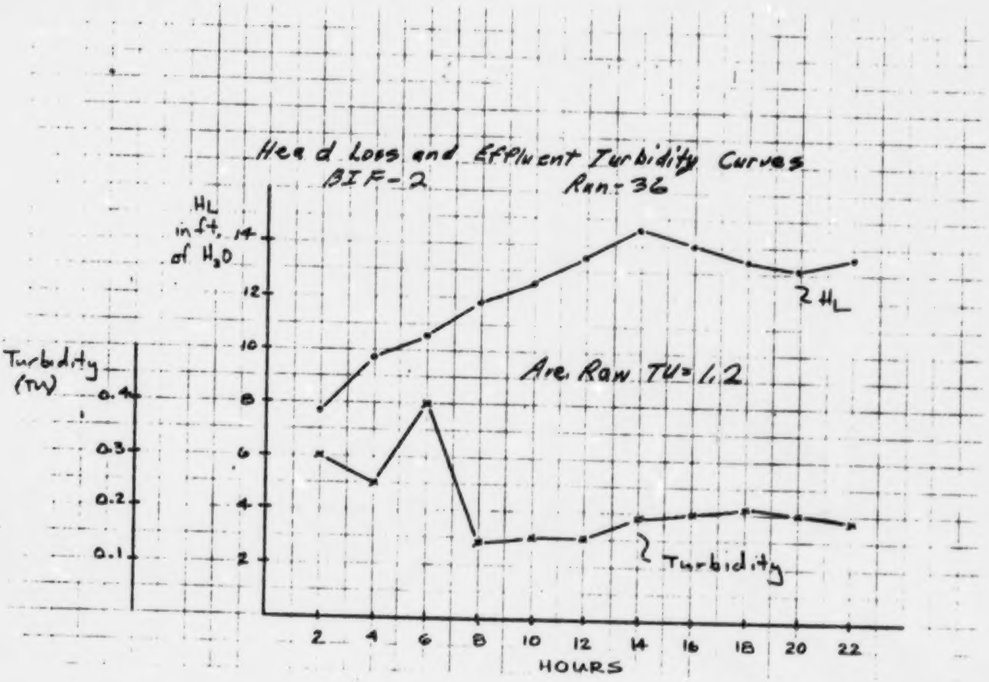


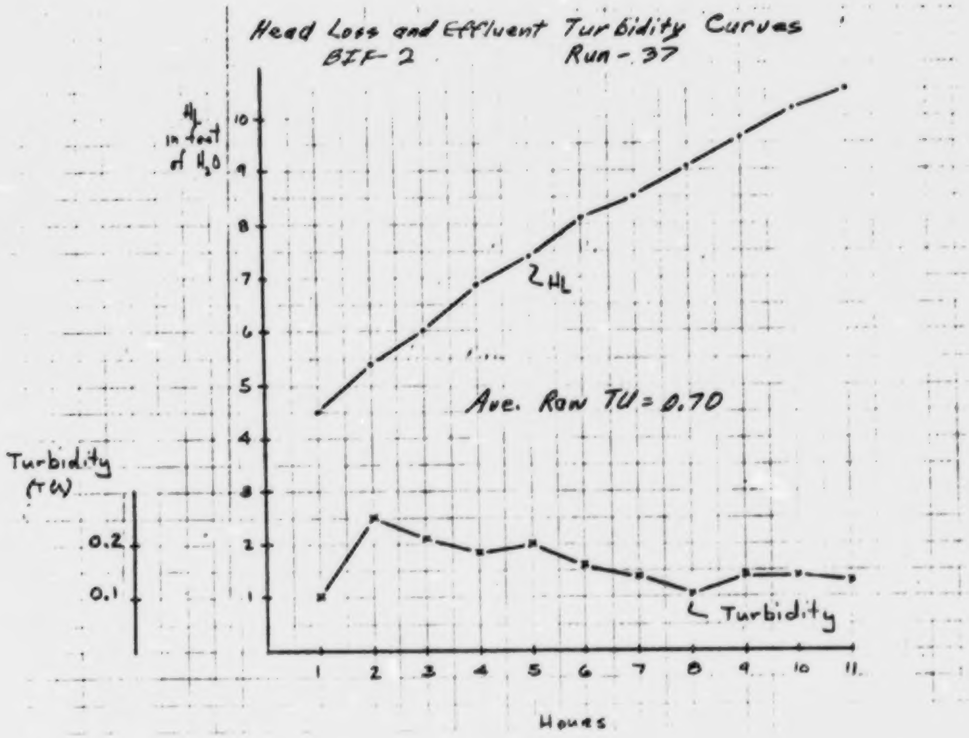
Head Loss and Effluent Turbidity Curves
BIF-2 Run-33

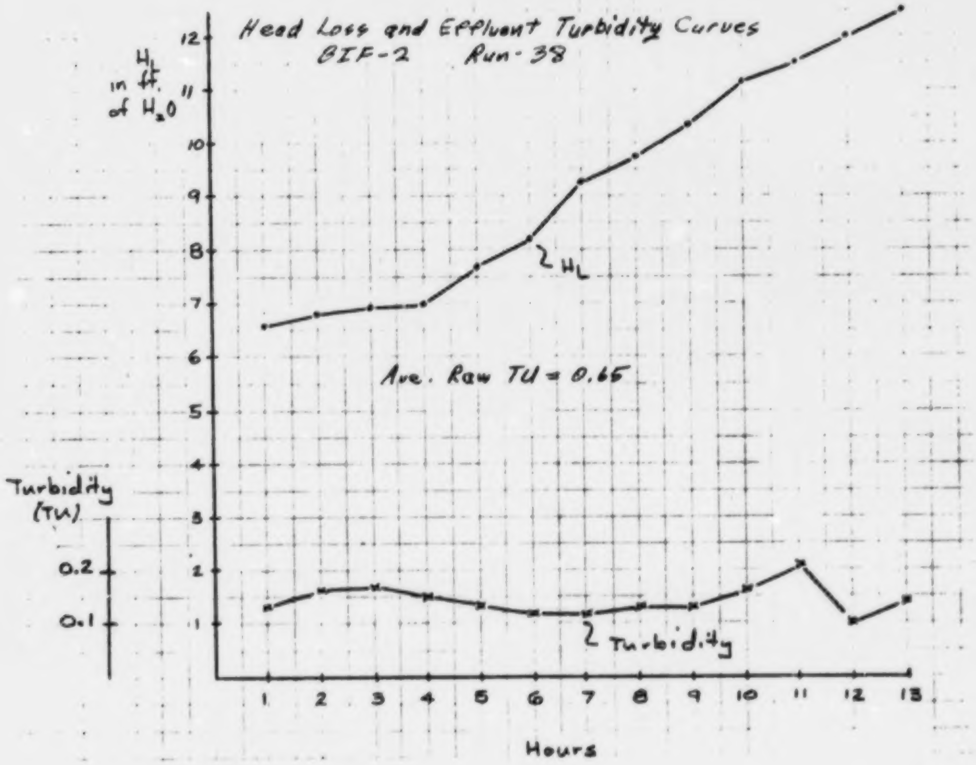


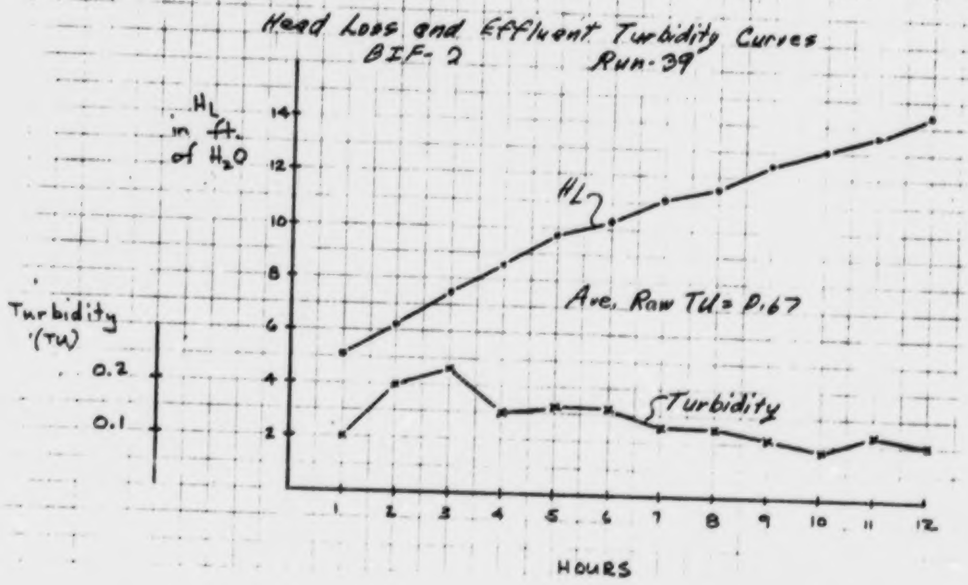
Head Loss and Effluent Turbidity Curves
BIF-2 Run-34


Head Loss and Effluent Turbidity Curves
BIF-2 Run-35
Turbidity (TU)
H_L in ft of H_2O
Ave. Raw TU = 1.2
0.6
0.5
0.4
0.3
0.2
0.1
14
12
10
8
6
4
2
H_L
Turbidity
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
HOURS

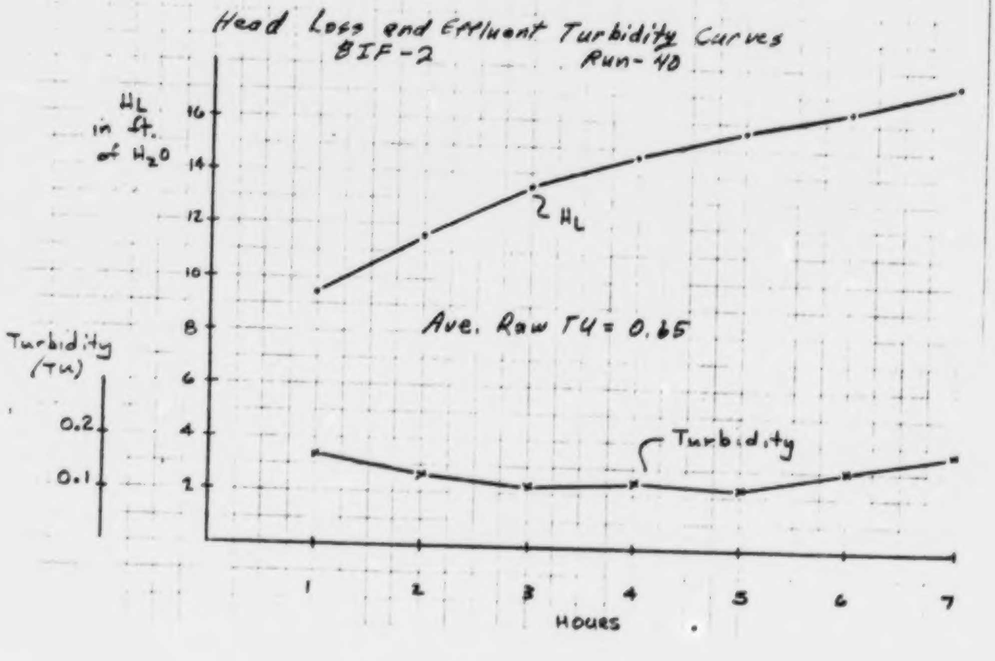

Head Loss and Effluent Turbidity Curves
BIF-2 Run-36
H_L in ft. of H_2O
14
12
10
8
6
4
2
Turbidity (TU)
0.4
0.3
0.2
0.1
H_L
Ave. Raw TU = 1.2
Turbidity
2 4 6 8 10 12 14 16 18 20 22
HOURS


Head Loss and Effluent Turbidity Curves
BIF-2 Run-37
H_L in feet of H_2O
10
9
8
7
6
5
4
3
2
1
H_L
Ave. Raw TU = 0.70
Turbidity (TU)
0.2
0.1
Turbidity
1
2
3
4
5
6
7
8
9
10
11
Hours

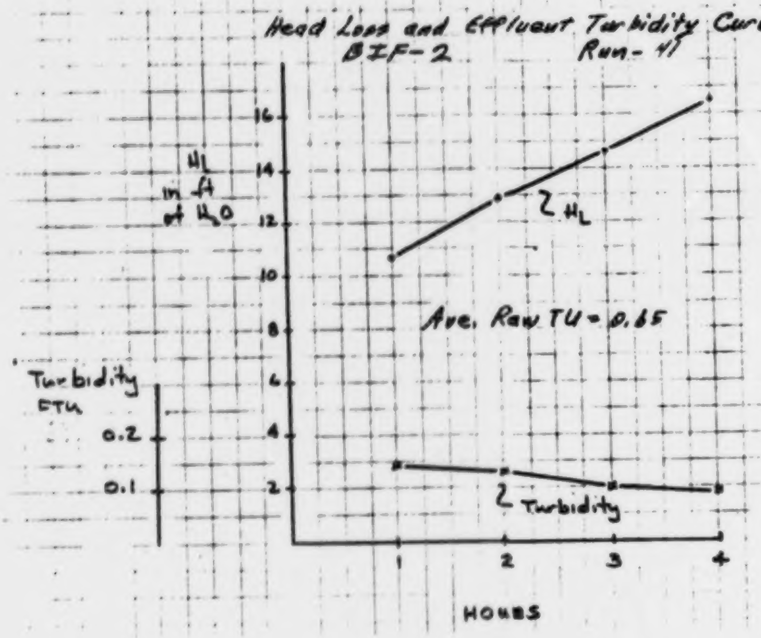

Head Loss and Effluent Turbidity Curves
BIF-2 Run-38
H_L in ft. of H_2O
12
11
10
9
8
7
6
5
4
3
2
1
H_L
Ave. Raw TU = 0.65
Turbidity (TU)
0.2
0.1
Turbidity
1
2
3
4
5
6
7
8
9
10
11
12
13
Hours

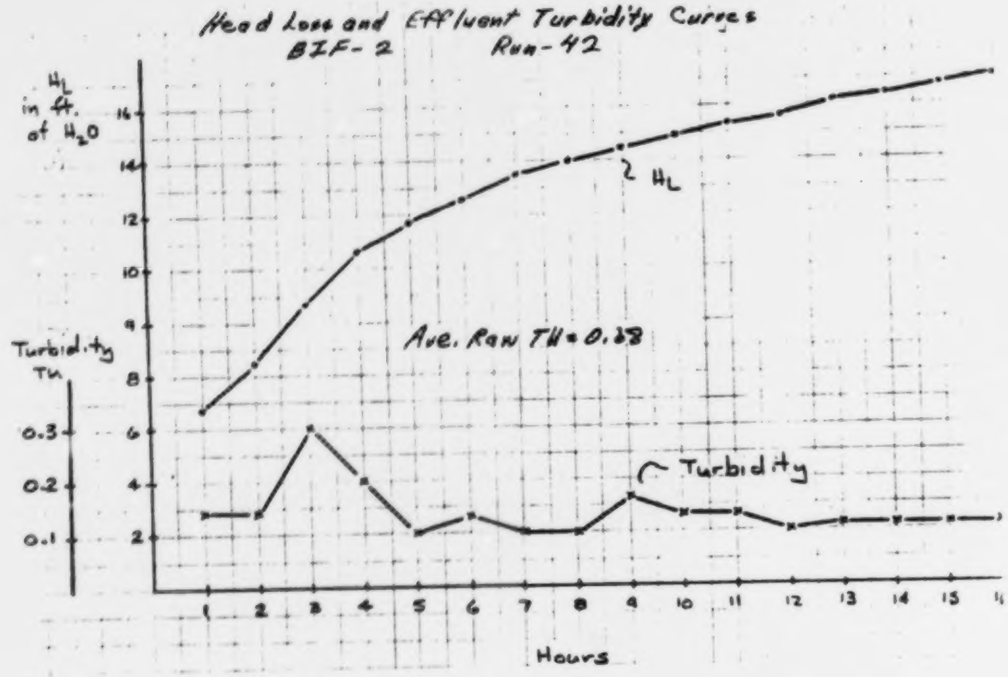


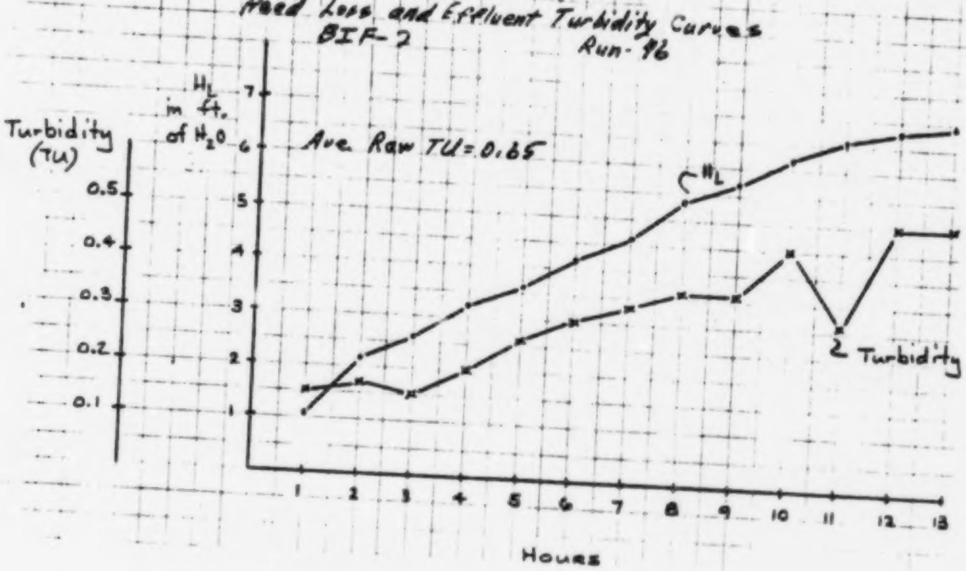
Head Loss and Effluent Turbidity Curves
BIF-2 Run-39

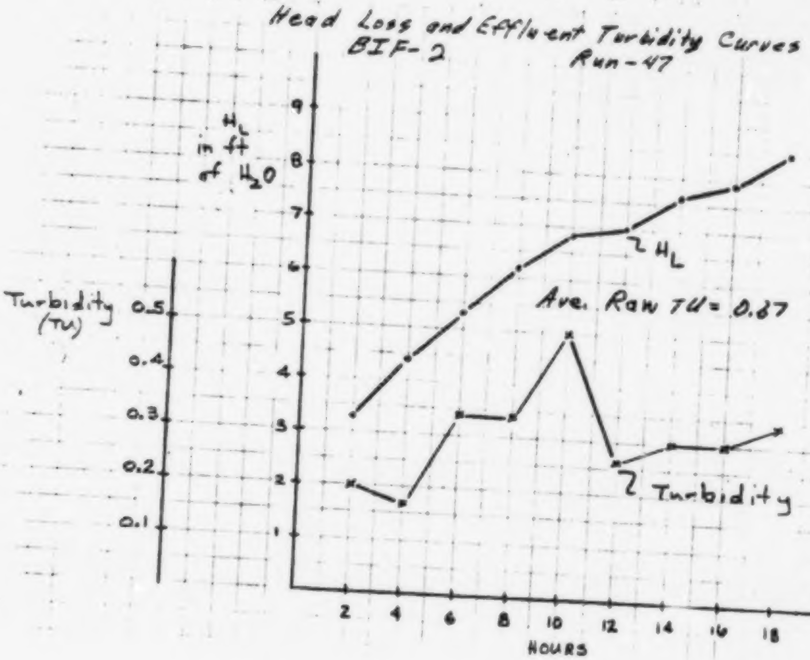


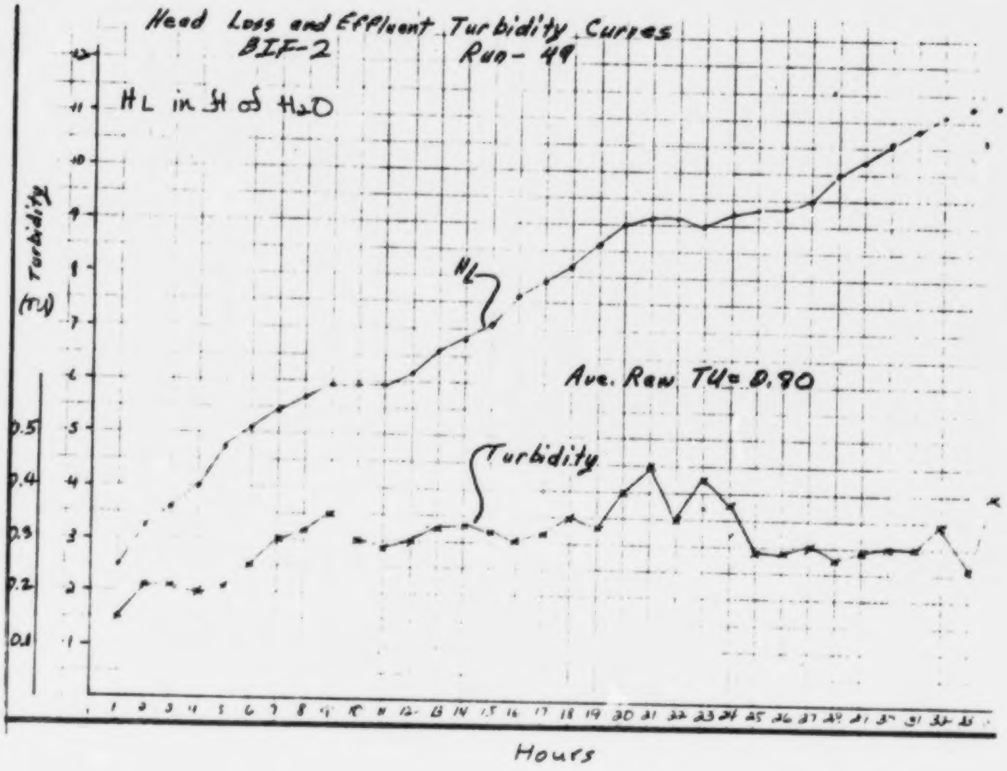
Head Loss and Effluent Turbidity Curves
BIF-2 Run-40

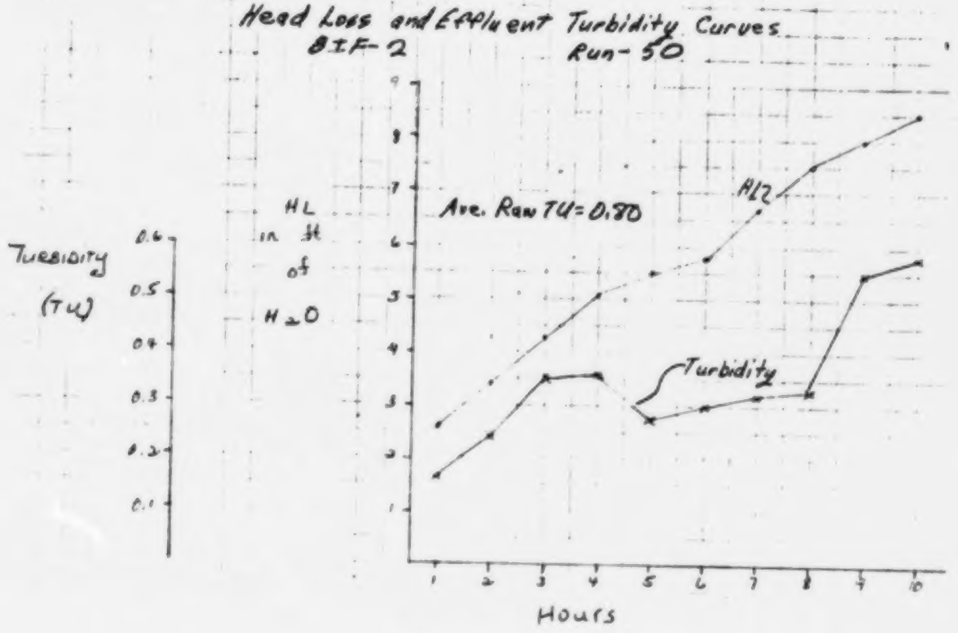

Head Loss and Effluent Turbidity Curves
BIF-2 Run-41
H_L in ft of H_2O
16
14
12
10
8
6
4
2
Turbidity FTU
0.2
0.1
H_L
Ave. Raw TU = 0.65
Turbidity
1
2
3
4
HOURS

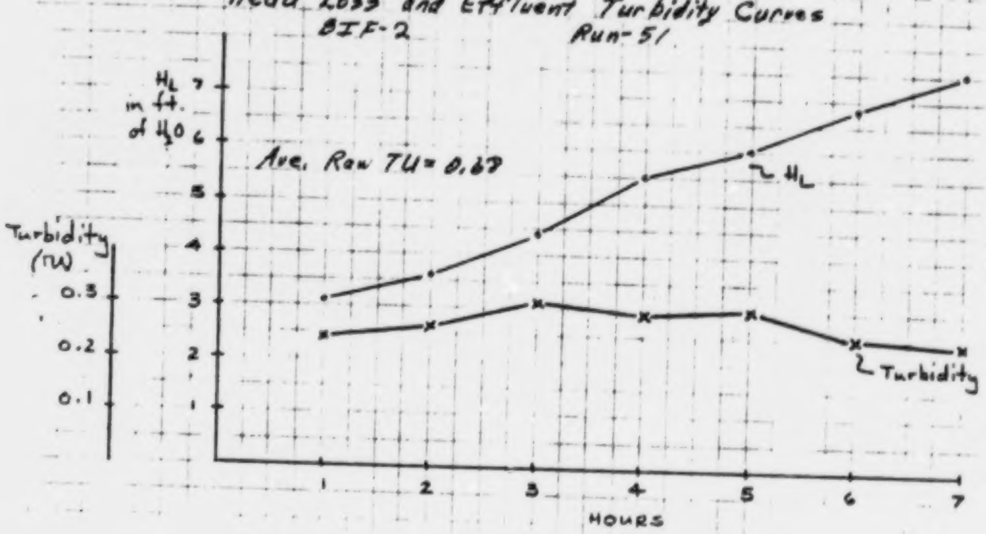

Head Loss and Effluent Turbidity Curves
BIF-2 Run-42
H_L in ft. of H_2O
16
14
12
10
9
8
6
4
2
Turbidity TU
0.3
0.2
0.1
H_L
Ave. Raw TU = 0.38
Turbidity
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Hours

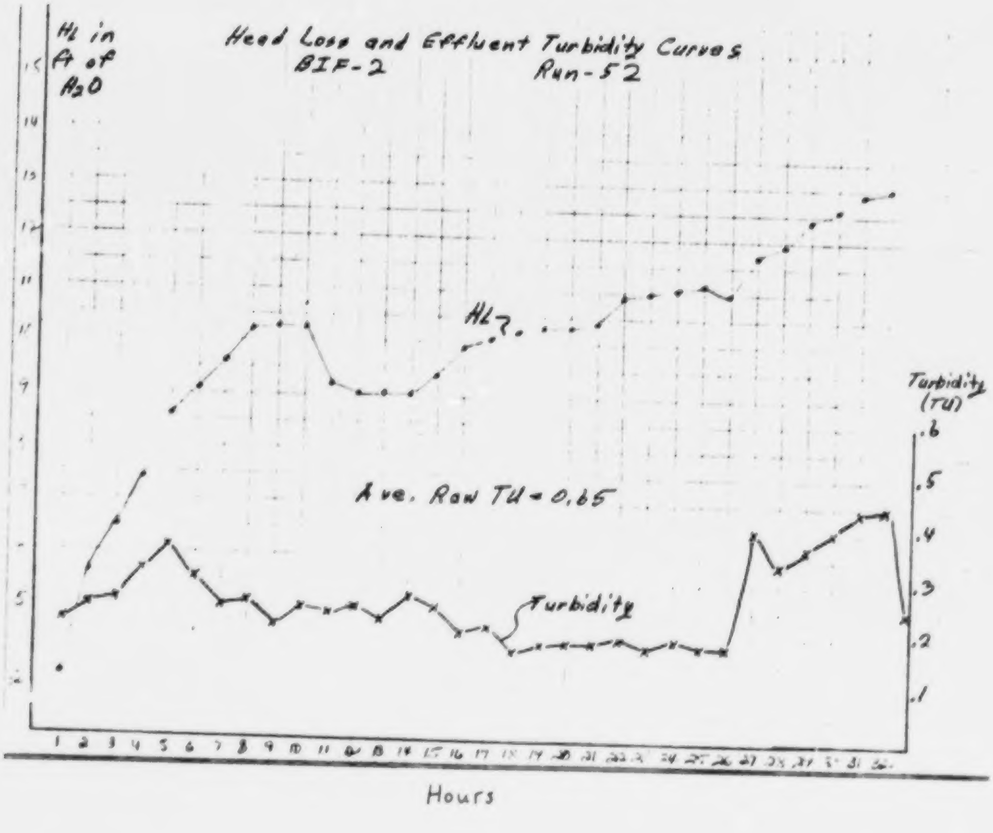

Head Loss and Effluent Turbidity Curves
BIF-2
Run-46
Turbidity (TU)
H_L in ft. of H_2O
Ave. Raw TU = 0.65
H_L
Turbidity
0.5
0.4
0.3
0.2
0.1
7
6
5
4
3
2
1
1
2
3
4
5
6
7
8
9
10
11
12
13
Hours

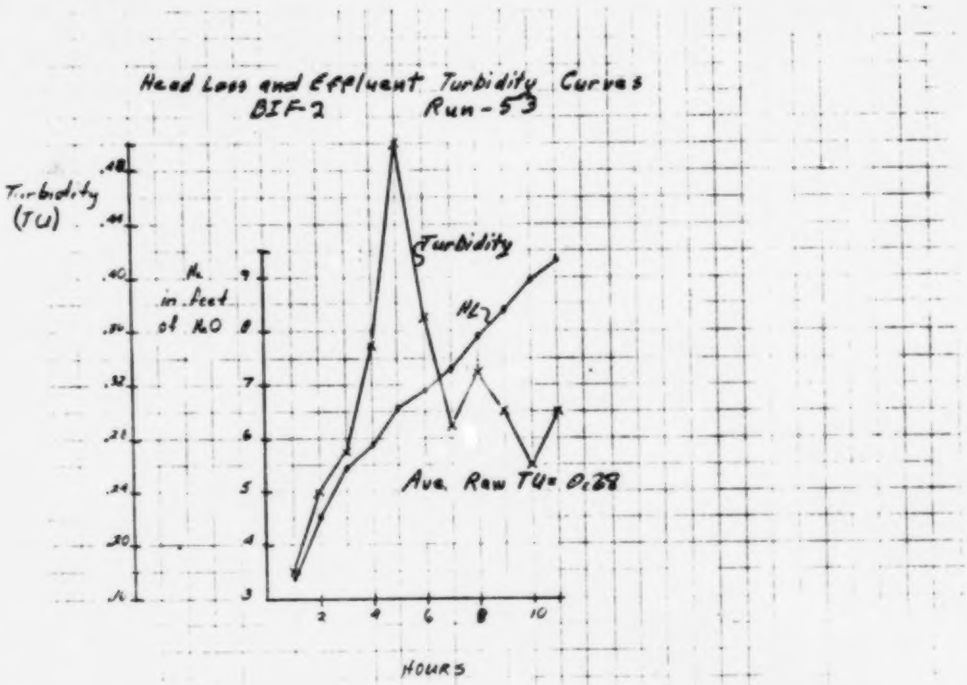

Head Loss and Effluent Turbidity Curves
BIF-2
Run-47
H_L in ft of H_2O
Turbidity (TU)
Ave. Raw TU = 0.87
H_L
Turbidity
0.5
0.4
0.3
0.2
0.1
9
8
7
6
5
4
3
2
1
2
4
6
8
10
12
14
16
18
HOURS

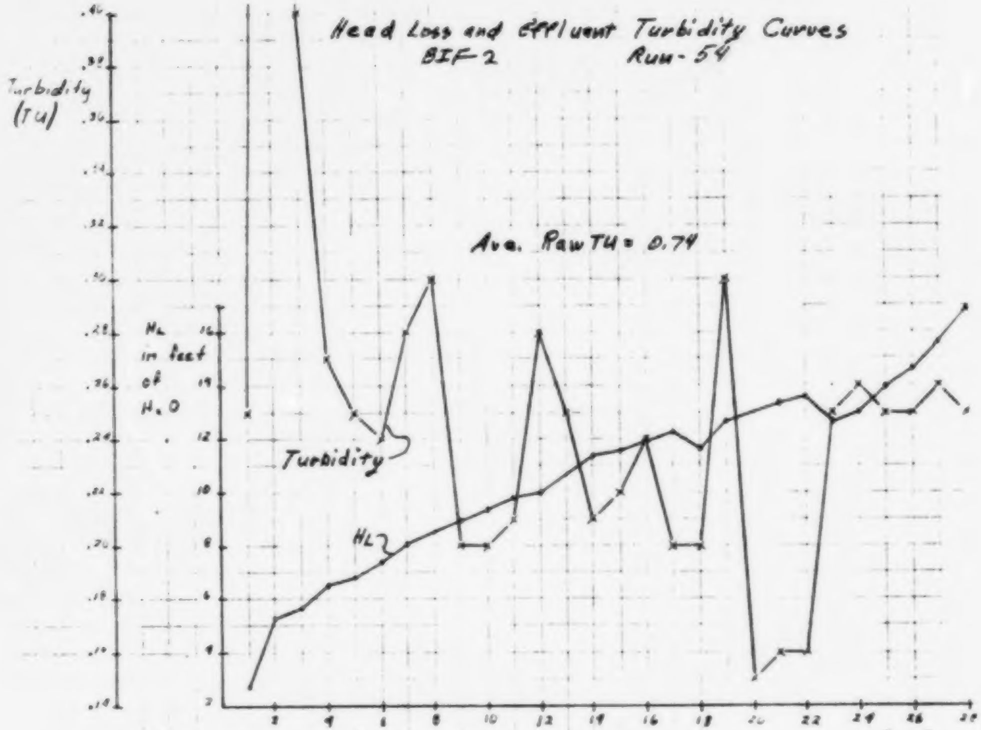

Head Loss and Effluent Turbidity Curves
BIF-2
Run- 49
HL in ft of H2O
Turbidity (TU)
HL
Ave. Raw TU= 0.80
Turbidity
Hours
0.1
0.2
0.3
0.4
0.5
1
2
3
4
5
6
7
8
9
10
11
12
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

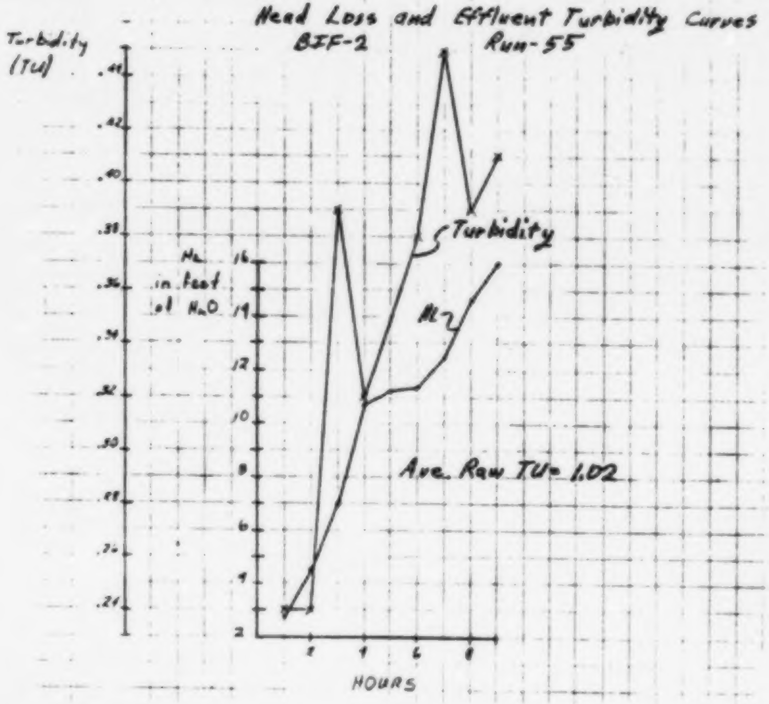

Head Loss and Effluent Turbidity Curves
BIF-2
Run- 50
Turbidity (TU)
HL in ft of H2O
Ave. Raw TU= 0.80
HL
Turbidity
Hours
0.1
0.2
0.3
0.4
0.5
0.6
1
2
3
4
5
6
7
8
9
1 2 3 4 5 6 7 8 9 10


Head Loss and Effluent Turbidity Curves
BIF-2
Run-51
H_L in ft. of H_2O
Ave. Raw TU = 0.67
Turbidity (TU)
0.3
0.2
0.1
1
2
3
4
5
6
7
H_L
Turbidity
1
2
3
4
5
6
7
HOURS


H_L in ft of H_2O
Head Loss and Effluent Turbidity Curves
BIF-2
Run-52
15
14
13
12
11
10
9
5
H_L
Ave. Raw TU = 0.65
Turbidity
Turbidity (TU)
.6
.5
.4
.3
.2
.1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
Hours

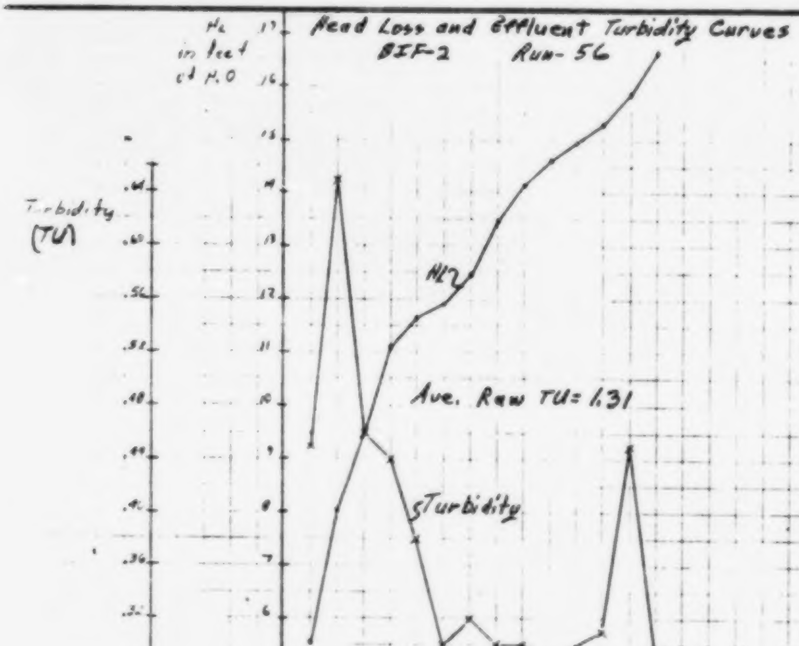

Head Loss and Effluent Turbidity Curves
BIF-2 Run-53
Turbidity (TU)
.48
.44
.40
.36
.32
.28
.24
.20
.16
HL in feet of H2O
9
8
7
6
5
4
3
Turbidity
HL
Ave. Raw TU= 0.28
2
4
6
8
10
HOURS


Head Loss and Effluent Turbidity Curves
BIF-2 Run-54
Turbidity (TU)
.40
.38
.36
.34
.32
.30
.28
.26
.24
.22
.20
.18
.16
.14
HL in feet of H2O
16
14
12
10
8
6
4
2
Ave. Raw TU = 0.74
Turbidity
HL
2
4
6
8
10
12
14
16
18
20
22
24
26
28
HOURS



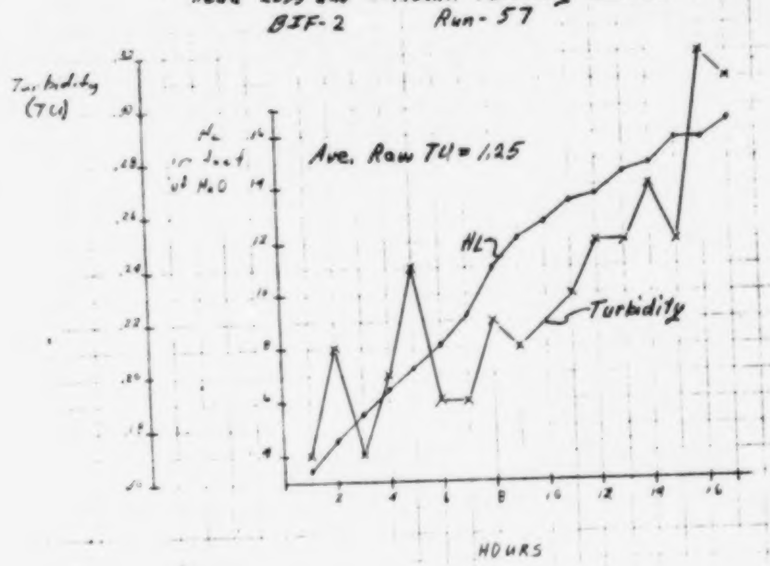
Head Loss and Effluent Turbidity Curves
BIF-2 Run-55

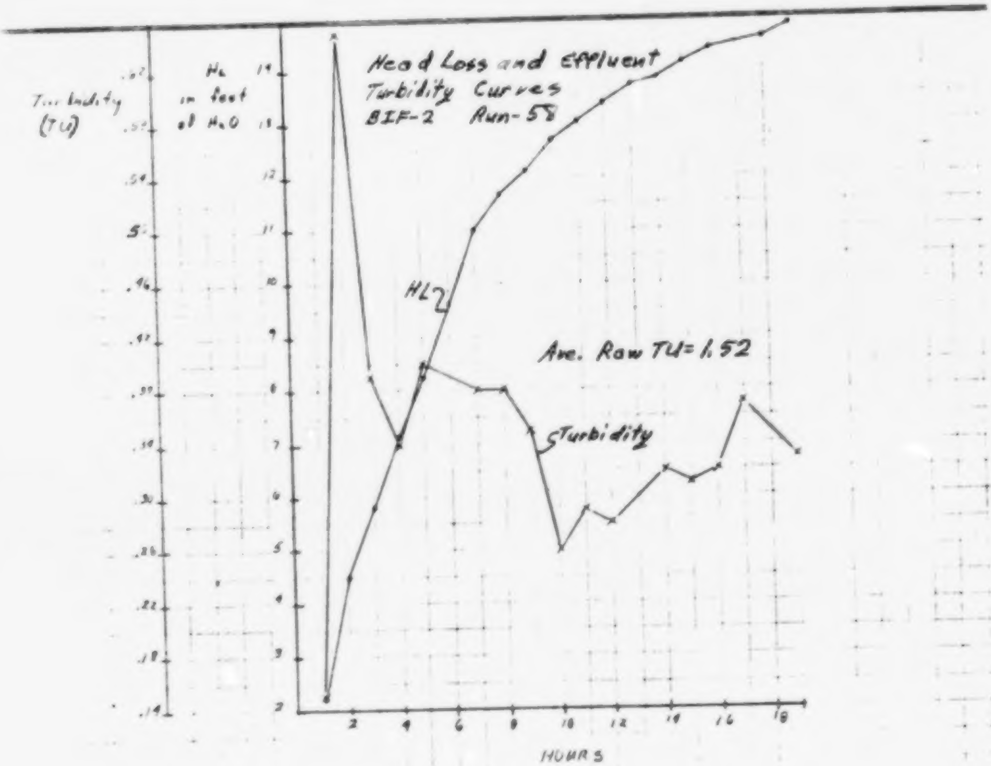
Ave. Raw TU= 1.02



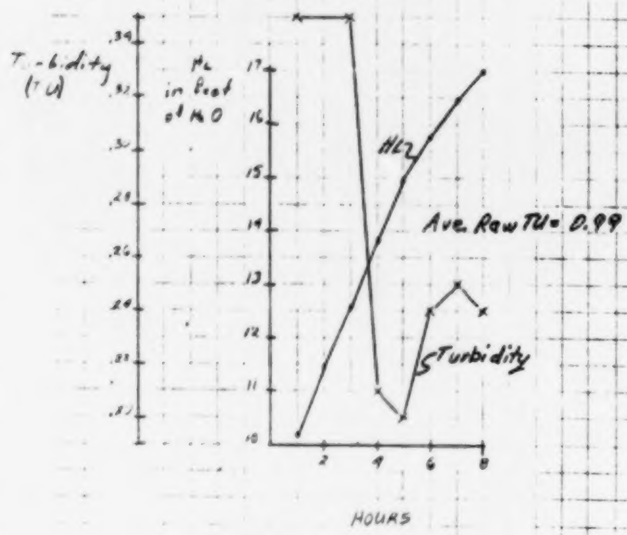
Head Loss and Effluent Turbidity Curves
BIF-2 Run-56

Ave. Raw TU= 1.31

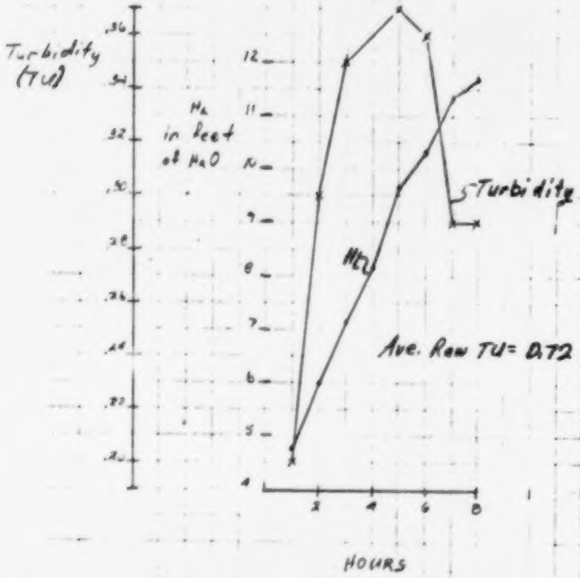

Head Loss and Effluent Turbidity Curves
BIF-2 Run-57
Turbidity (TU)
HL in feet of H₂O
Ave. Raw TU = 1.25
HL
Turbidity
HOURS
.32
.30
.28
.26
.24
.22
.20
.18
.16
16
14
12
10
8
6
4
2
4
6
8
10
12
14
16


Head Loss and Effluent Turbidity Curves
BIF-2 Run-58
Turbidity (TU)
HL in feet of H₂O
Ave. Raw TU = 1.52
HL
Turbidity
HOURS
.62
.58
.54
.50
.46
.42
.38
.34
.30
.26
.22
.18
.14
14
13
12
11
10
9
8
7
6
5
4
3
2
2
4
6
8
10
12
14
16
18

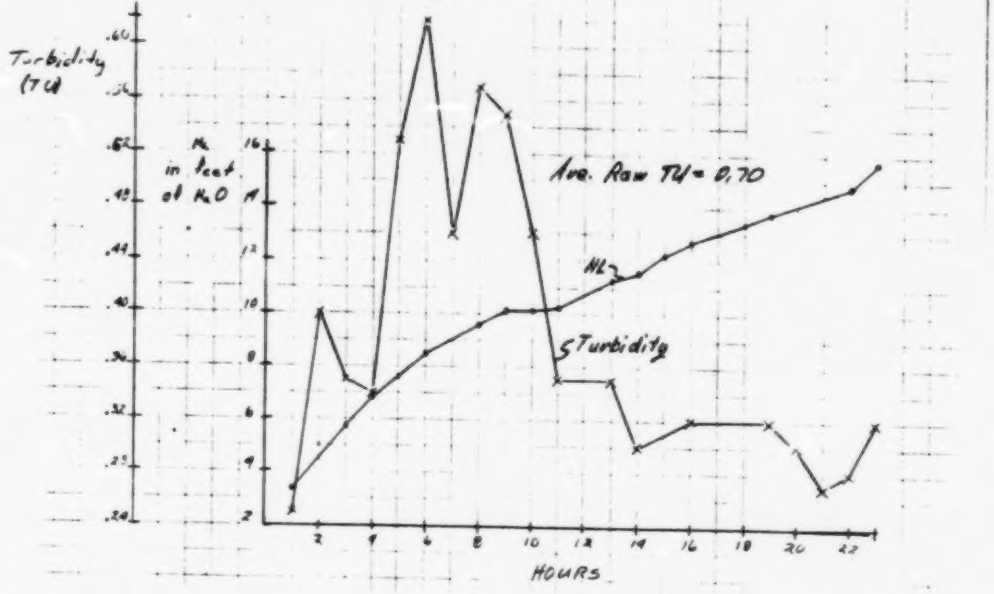
Head Loss and Effluent Turbidity Curves
BIF-2 Run- 59

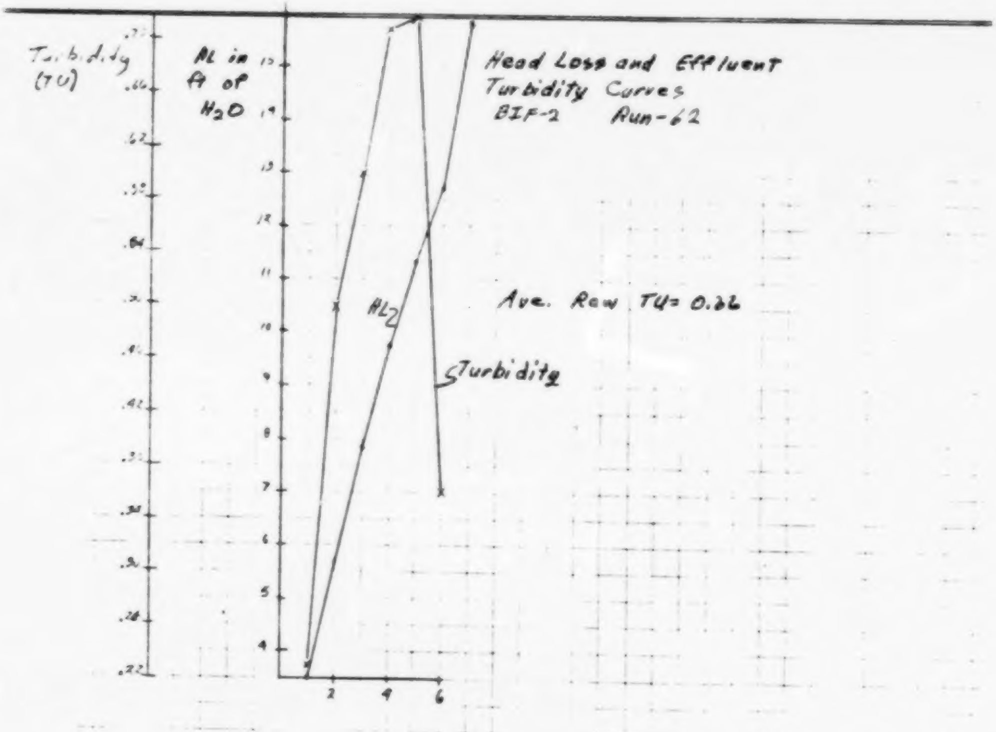


Head Loss and Effluent Turbidity Curves
BIF-2 Run- 60

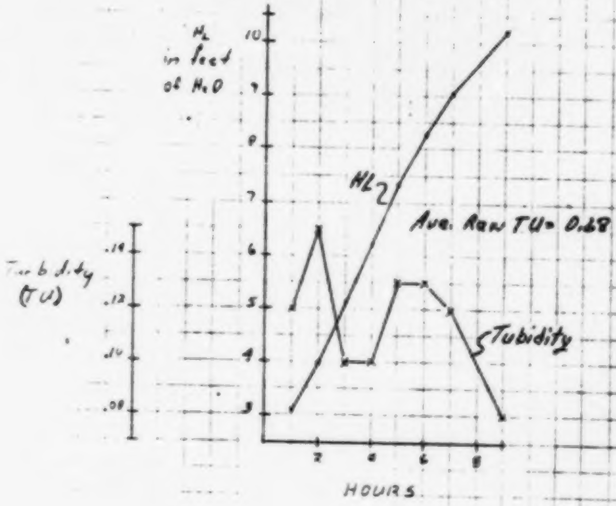


Head Loss and Effluent Turbidity Curves
BIF-2 Run - 61

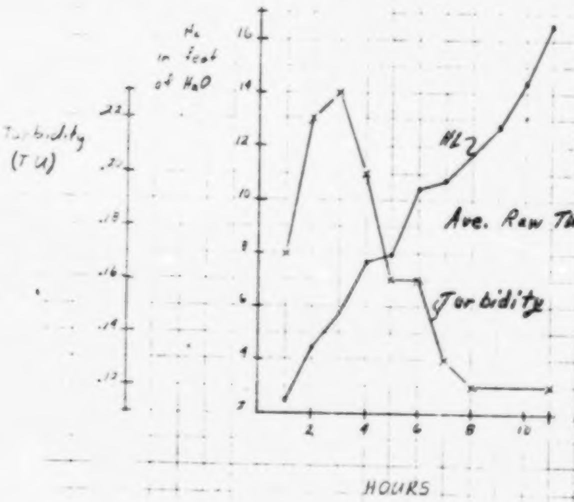


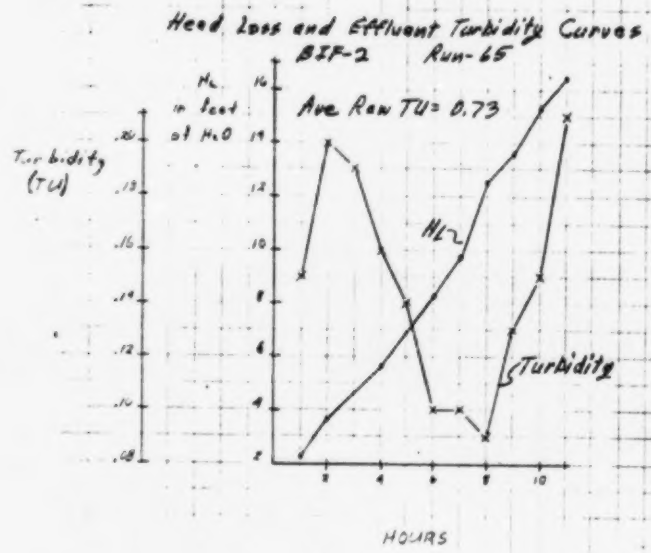

Head Loss and Effluent Turbidity Curves
BIF-2 Run-62

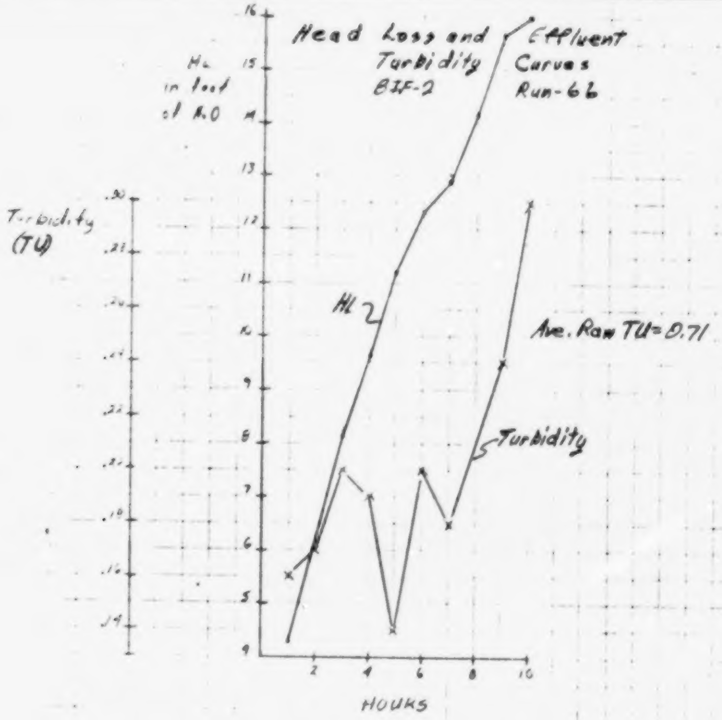
Head Loss and Effluent Turbidity Curves
BIF-2 Run-63

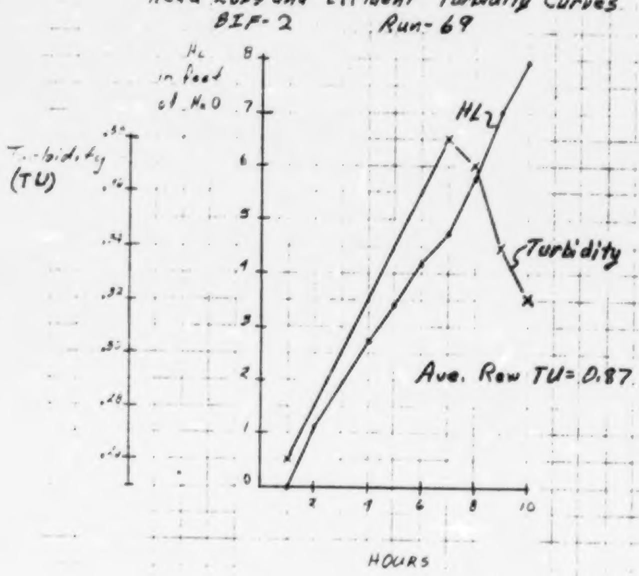


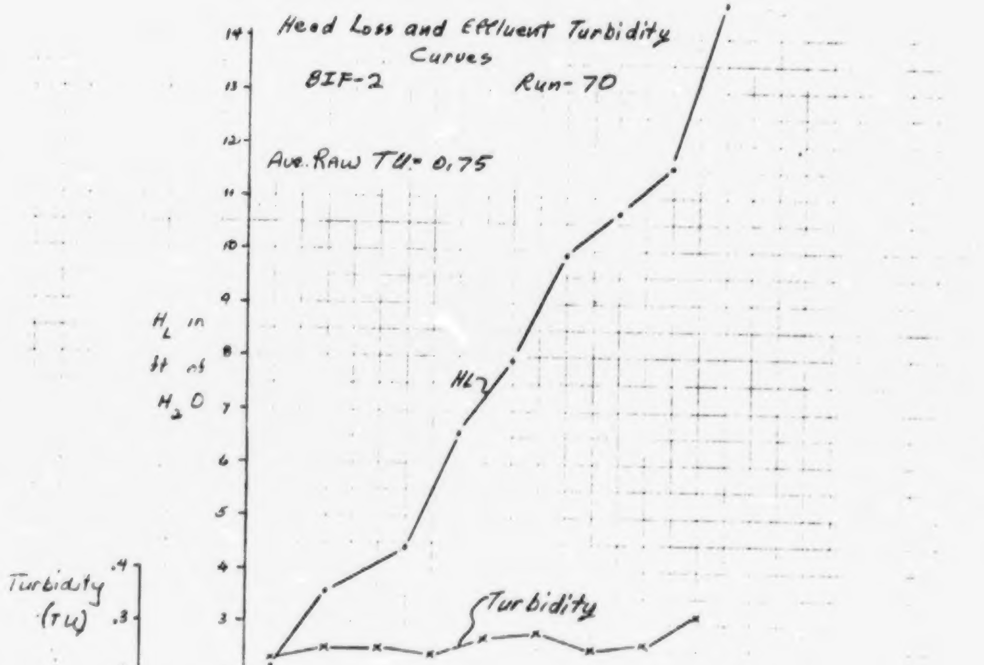
Head Loss and Effluent Turbidity Curves
BIF-2 Run-64

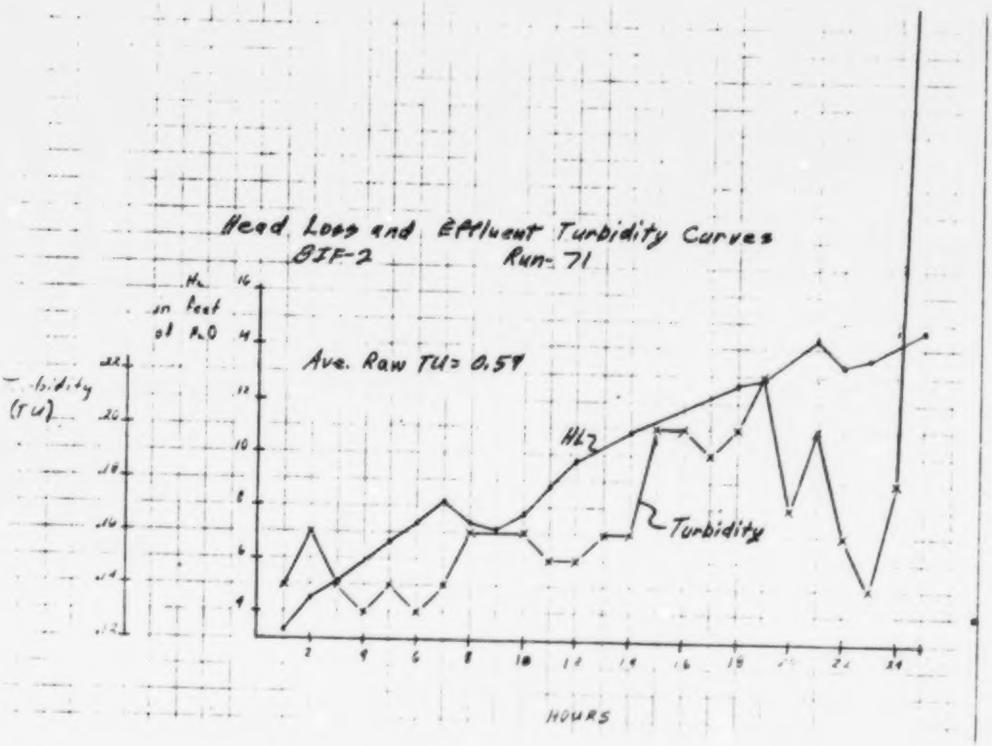


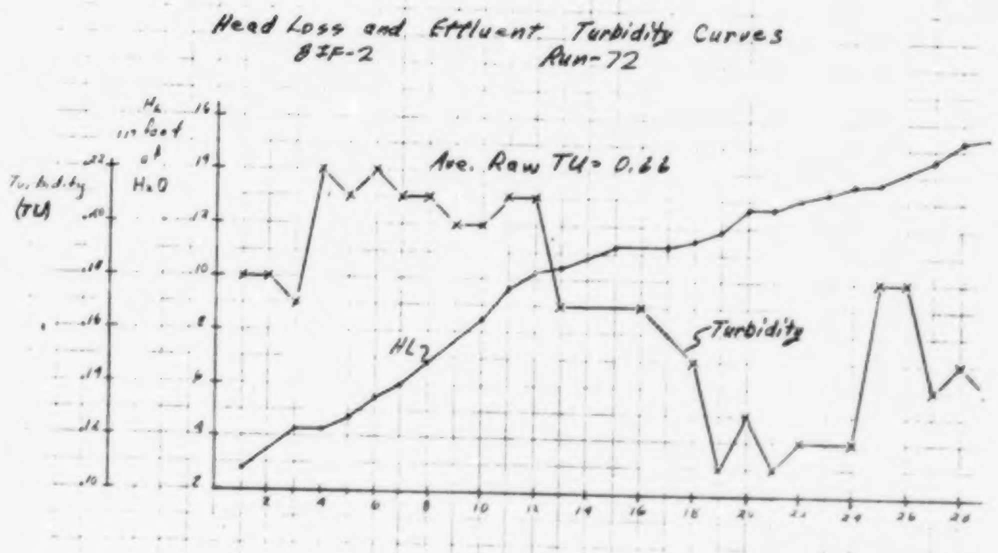

Head Loss and Effluent Turbidity Curves
BIF-2 Run-65
Ave Raw TU= 0.73
HL in feet of H2O
Turbidity (TU)
.20
.18
.16
.14
.12
.10
.08
16
14
12
10
8
6
4
2
2
4
6
8
10
HL
Turbidity
HOURS

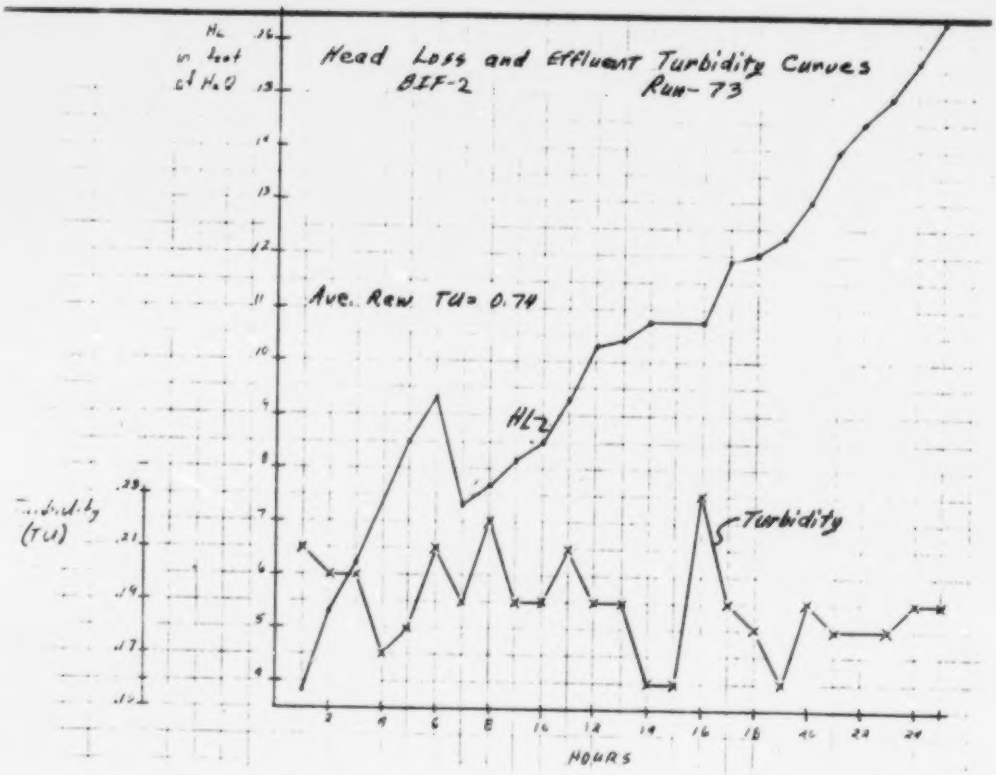

Head Loss and Effluent Turbidity Curves
BIF-2
Run-66
HL in feet of H2O
Turbidity (TU)
.30
.28
.26
.24
.22
.20
.18
.16
.14
16
15
14
13
12
11
10
9
8
7
6
5
4
2
4
6
8
10
HL
Ave. Raw TU= 0.71
Turbidity
HOURS

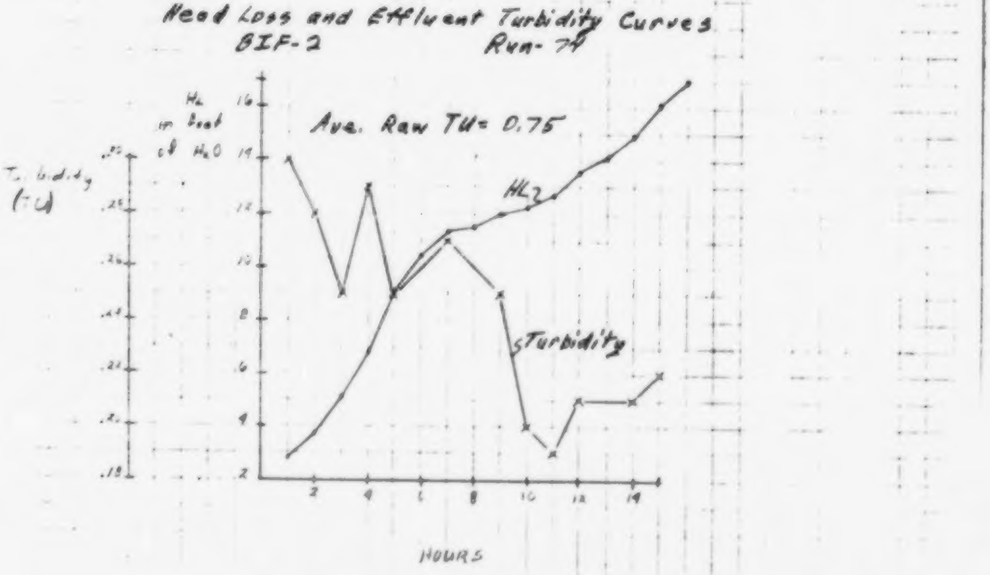

Head Loss and Effluent Turbidity Curves
BIF-2
Run-69
H_L in feet of H_2O
Turbidity (TU)
.38
.36
.34
.32
.30
.28
.26
8
7
6
5
4
3
2
1
0
HL
Turbidity
Ave. Raw TU = 0.87
2
4
6
8
10
HOURS

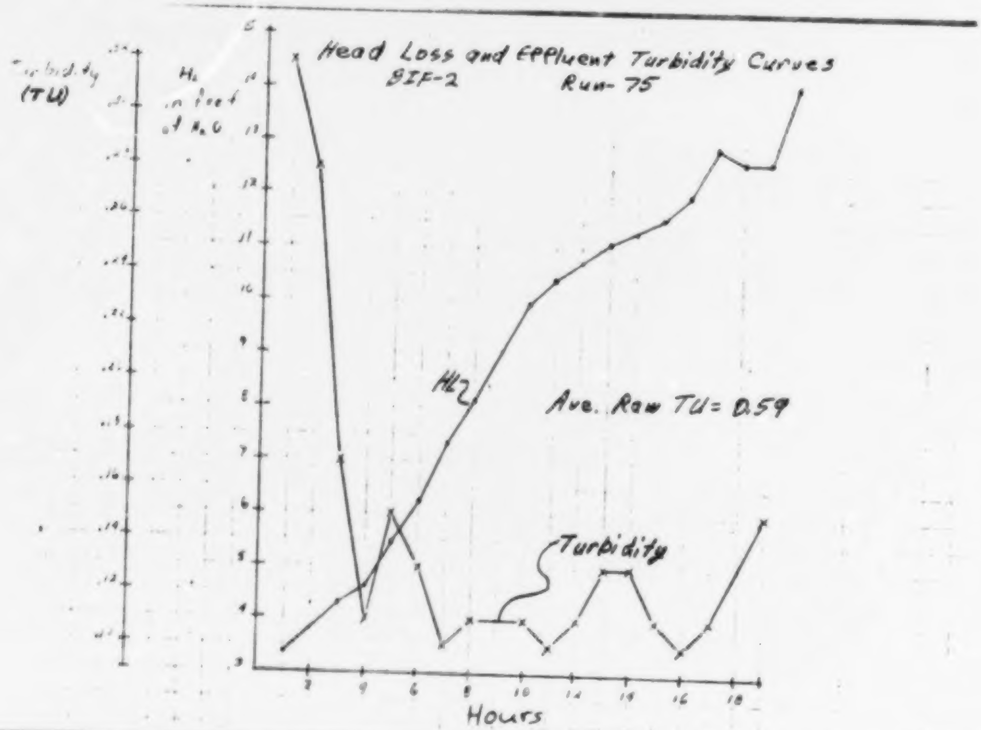

Head Loss and Effluent Turbidity Curves
BIF-2
Run-70
Ave. RAW TU = 0.75
H_L in ft of H_2O
14
13
12
11
10
9
8
7
6
5
4
3
2
HL
Turbidity
Turbidity (TU)
.4
.3
.2
1
3
5
7
9
11
13
15
17
19
Hours

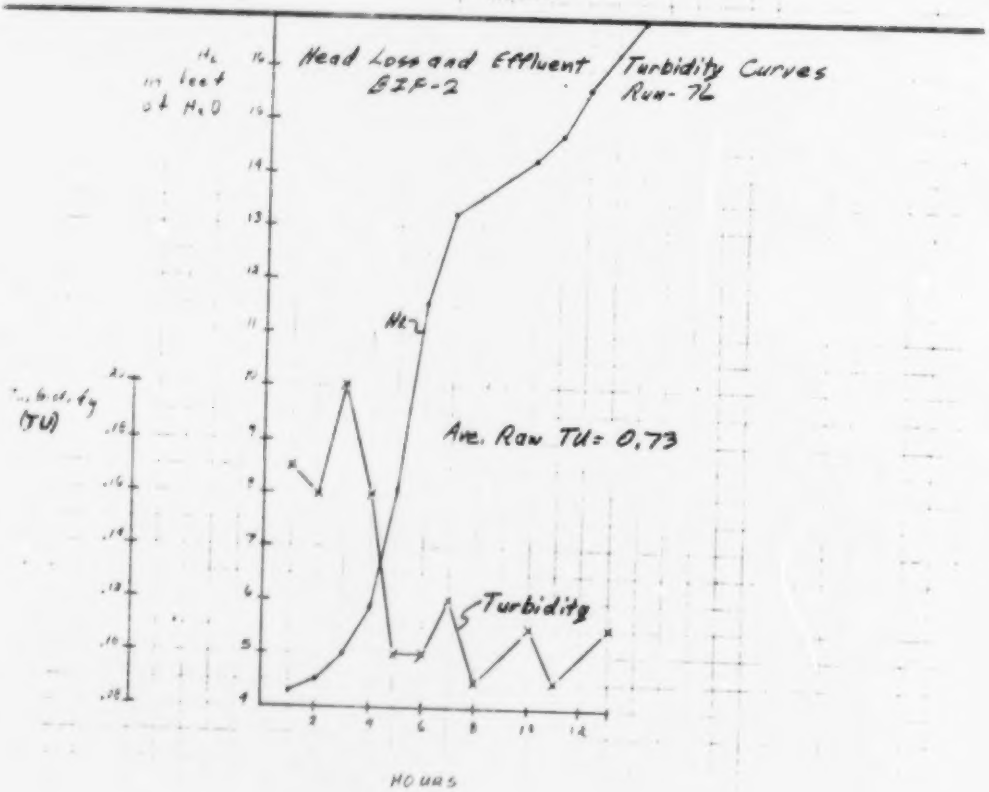

Head Loss and Effluent Turbidity Curves
BIF-2 Run-71


Head Loss and Effluent Turbidity Curves
BIF-2 Run-72

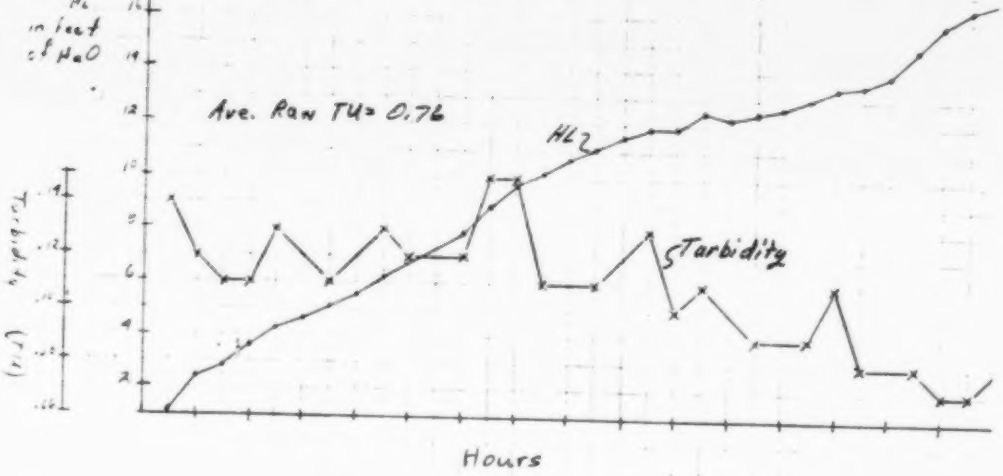

Head Loss and Effluent Turbidity Curves
BIF-2
Run-73
HL in feet of H2O
Ave. Raw TU= 0.74
HL2
Turbidity
Turbidity (TU)
HOURS


Head Loss and Effluent Turbidity Curves
BIF-2
Run-74
HL in feet of H2O
Ave. Raw TU= 0.75
HL2
Turbidity
Turbidity (TU)
HOURS

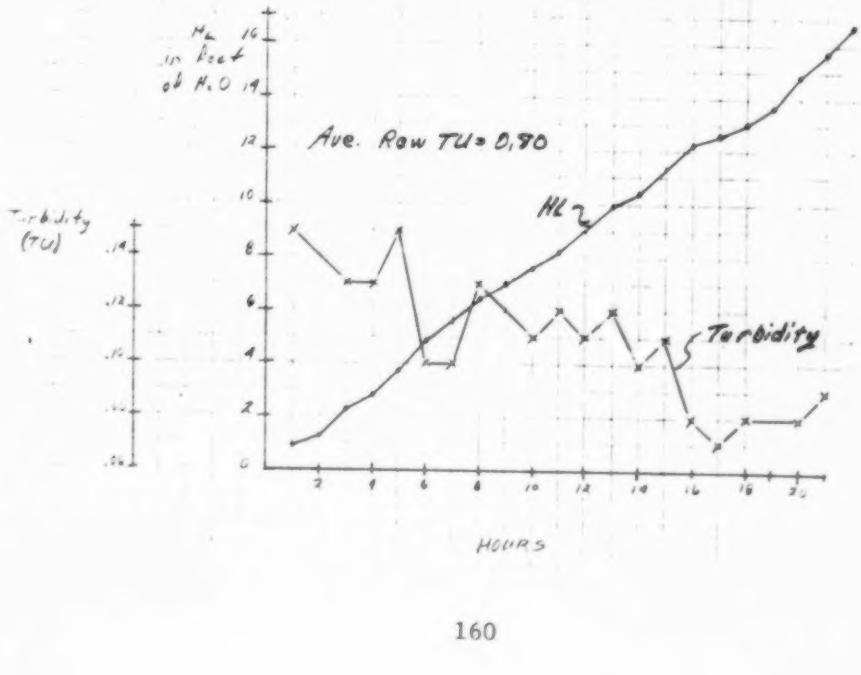

Head Loss and Effluent Turbidity Curves
BIF-2
Run-75
Turbidity
(TU)
HL
in feet
of H2O
HL
Ave. Raw TU= 0.59
Turbidity
2
4
6
8
10
12
14
16
18
Hours

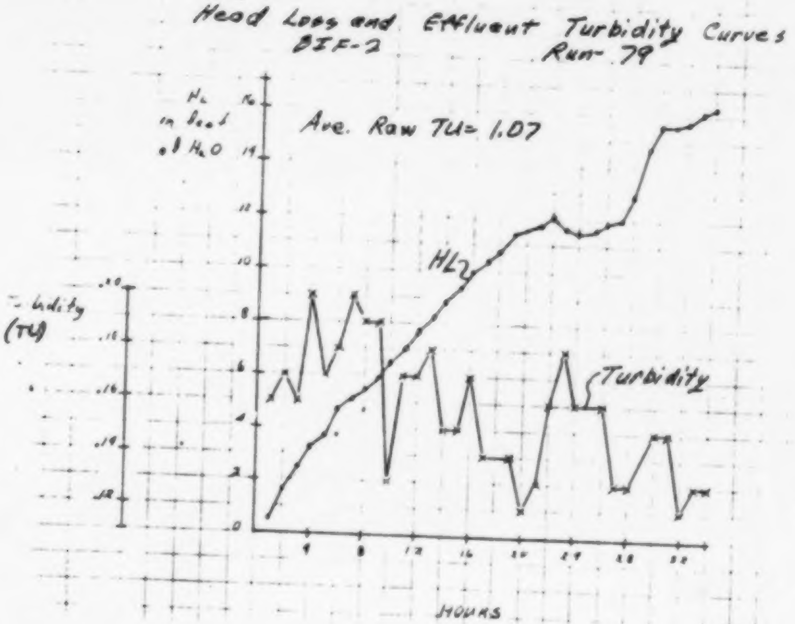

Head Loss and Effluent Turbidity Curves
BIF-2
Run-76
HL
in feet
of H2O
Turbidity
(TU)
HL
Ave. Raw TU= 0.73
Turbidity
16
15
14
13
12
11
10
9
8
7
6
5
4
2
4
6
8
10
12
14
HOURS

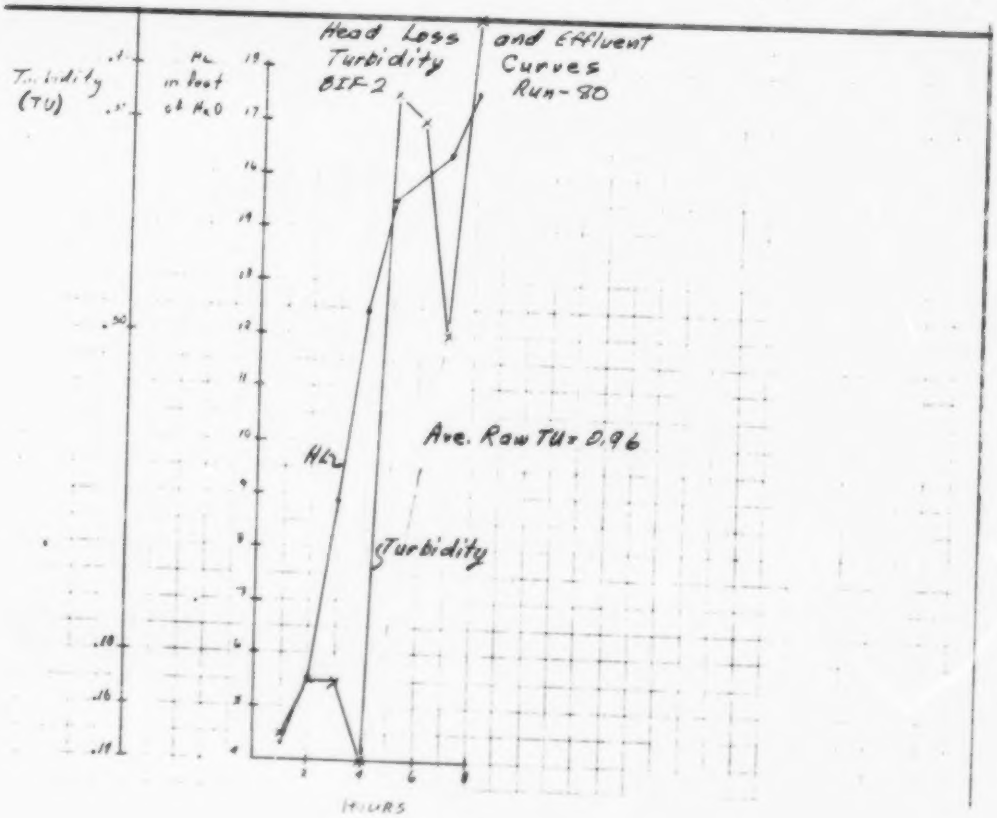
Head Loss and Effluent Turbidity Curves
BIF-2 Run-77



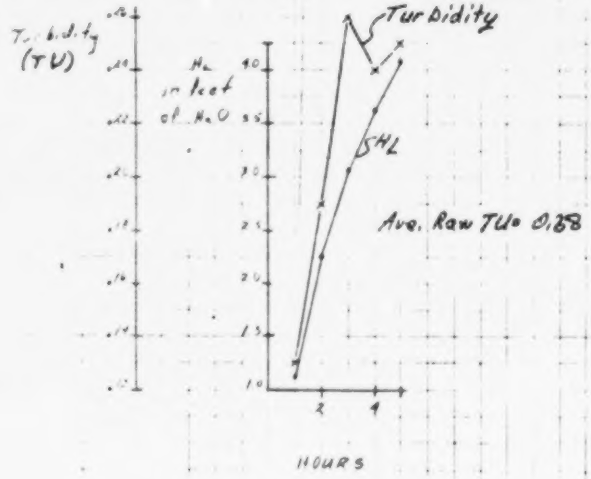
Head Loss and Effluent Turbidity Curves
BIF-2 Run-78

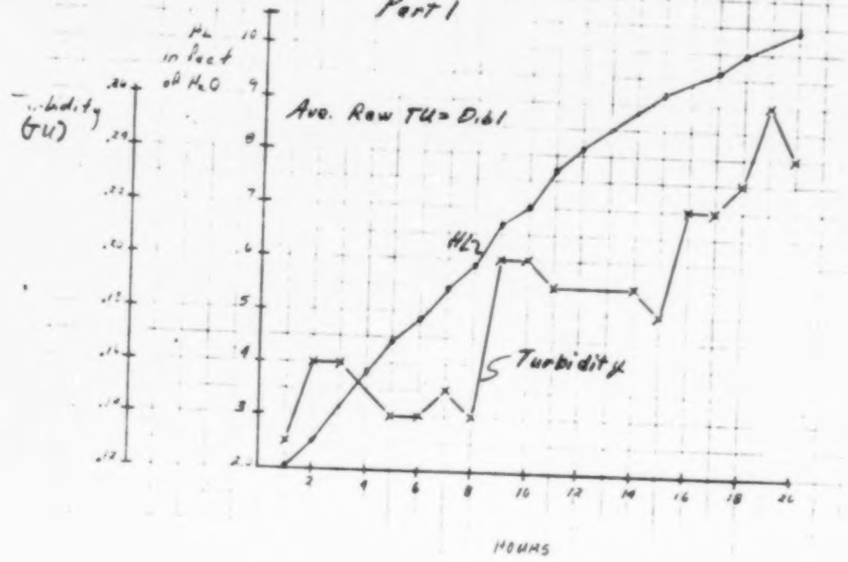


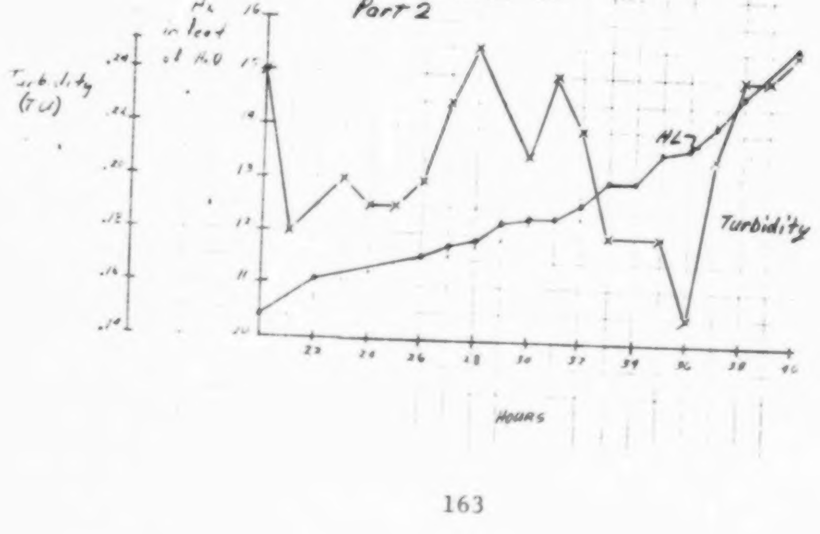

Head Loss and Effluent Turbidity Curves
BIF-2
Run- 79
HL in feet of H2O
Ave. Raw TU= 1.07
Turbidity (TU)
HL
Turbidity
.20
.18
.16
.14
.12
16
14
12
10
8
6
4
2
0
4
8
12
16
20
24
28
32
HOURS

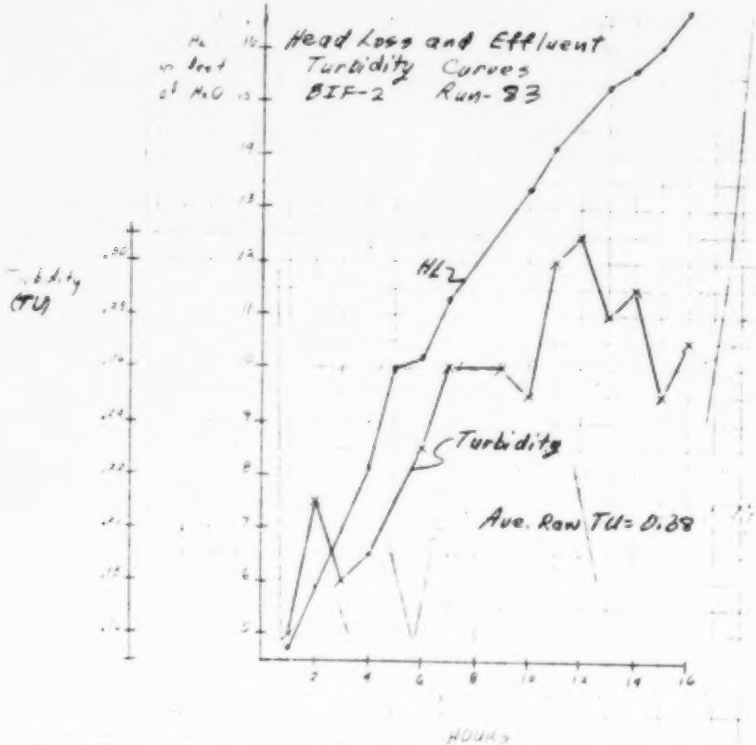

Head Loss and Effluent Turbidity Curves
BIF 2
Run-80
Turbidity (TU)
HL in feet of H2O
Ave. Raw TU= 0.96
HL
Turbidity
.50
.18
.16
17
16
12
11
10
7
6
2
4
6
8
HOURS

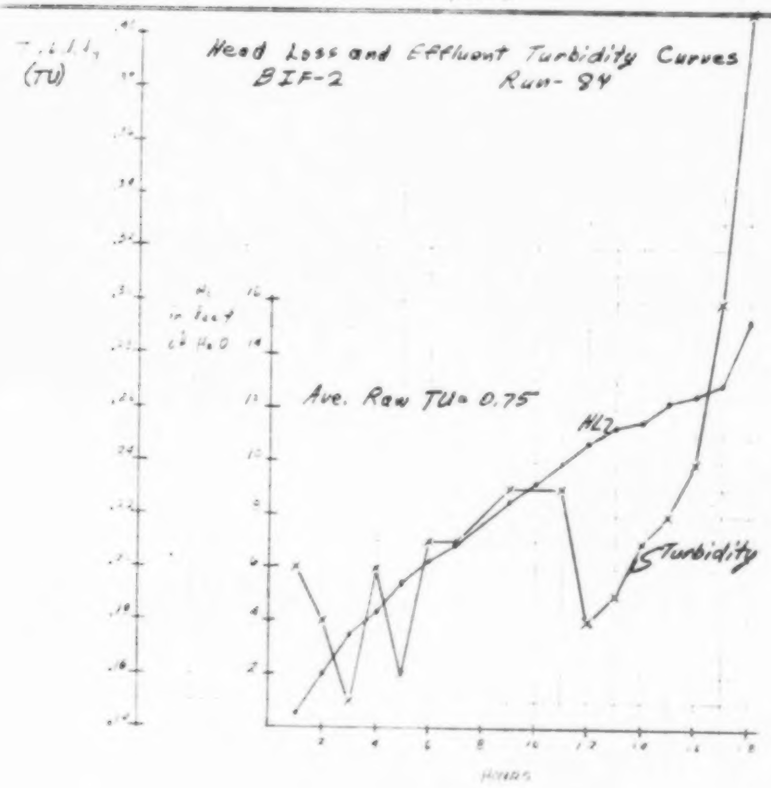
Head Loss and Effluent Turbidity Curves
BIF-2 Run-81



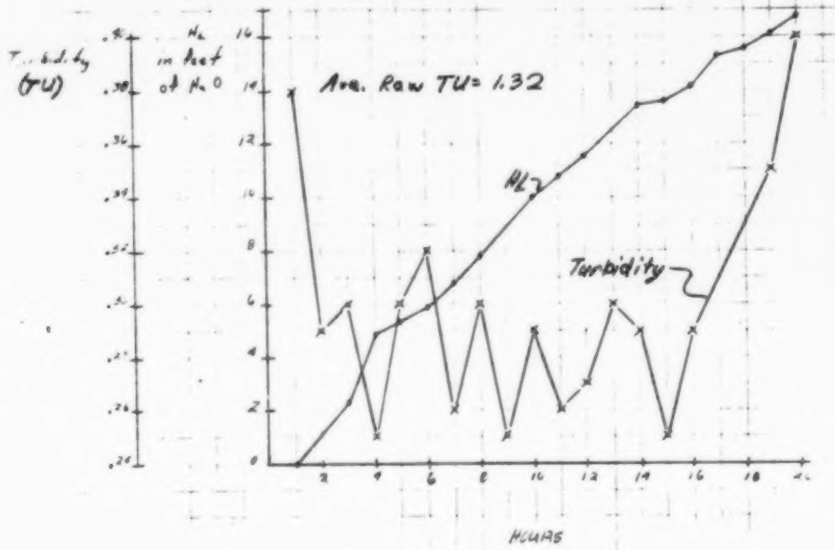

Head Loss and Effluent Turbidity Curves
BIF-2 Run- 82
Part 1


Head Loss and Effluent Turbidity Curves
BIF-2 Run- 82
Part 2

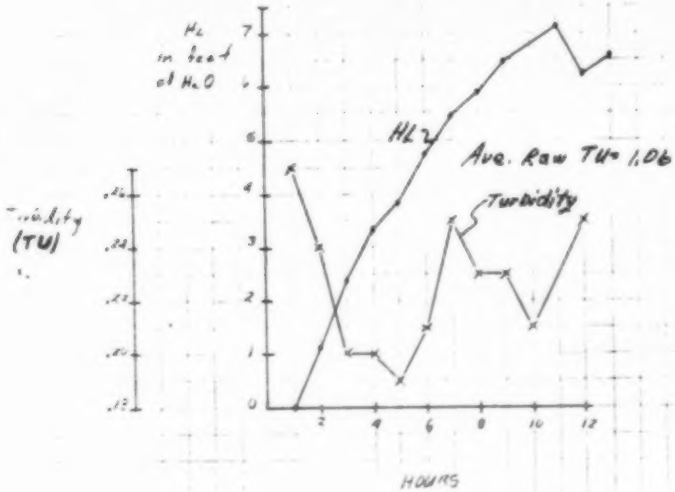

Head Loss and Effluent Turbidity Curves
BIF-2 Run-83


Head Loss and Effluent Turbidity Curves
BIF-2 Run- 84

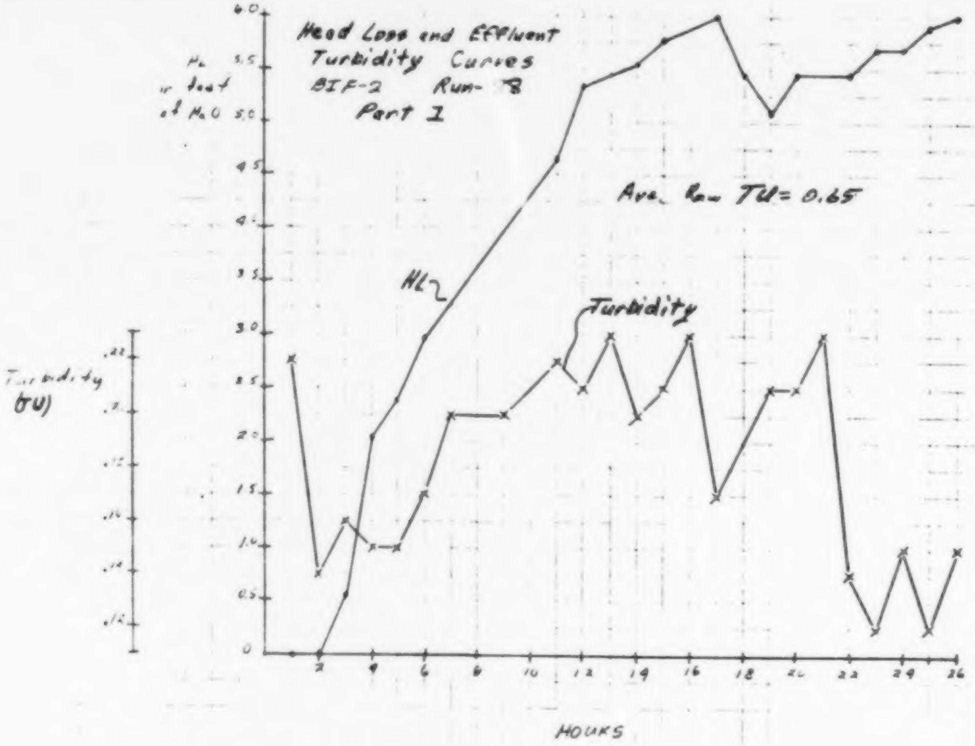
Head Loss and Effluent Turbidity Curves
BIF-2 Run- 86



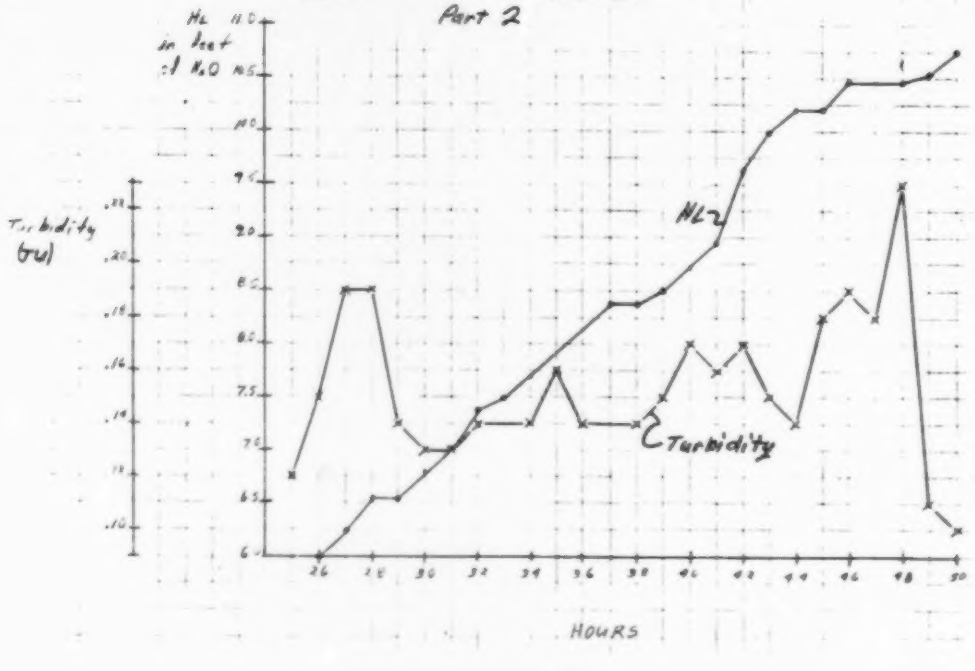
Head Loss and Effluent Turbidity Curves
BIF-2 Run - 87



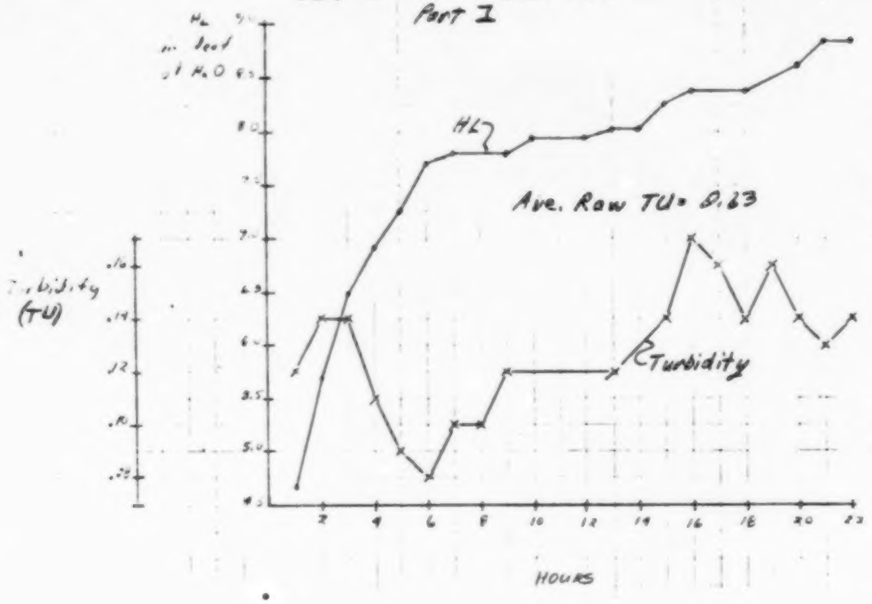
Reproduced from best available copy.



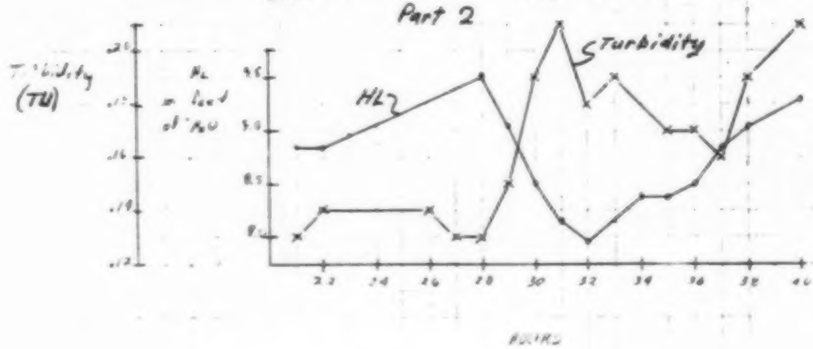
Head Loss and Effluent Turbidity Curves
BIF-2 Run-38
Part 2



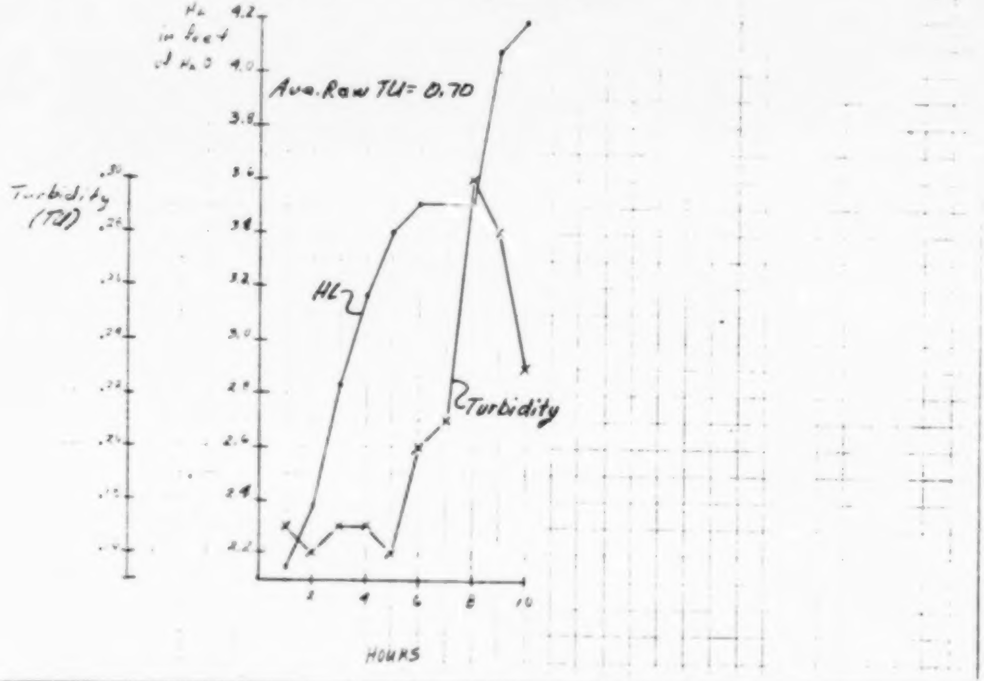
Head Loss and Effluent Turbidity Curves
BIF-2 Run-89
Part I



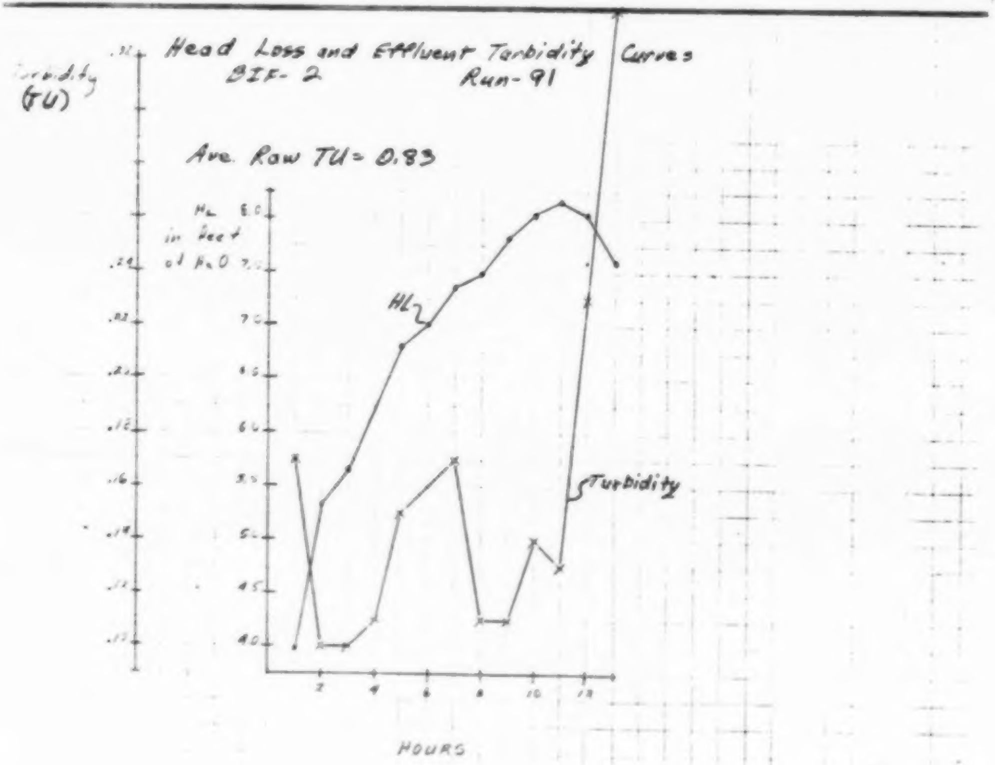
Head Loss and Effluent Turbidity Curves
BIF-2 Run-89
Part 2



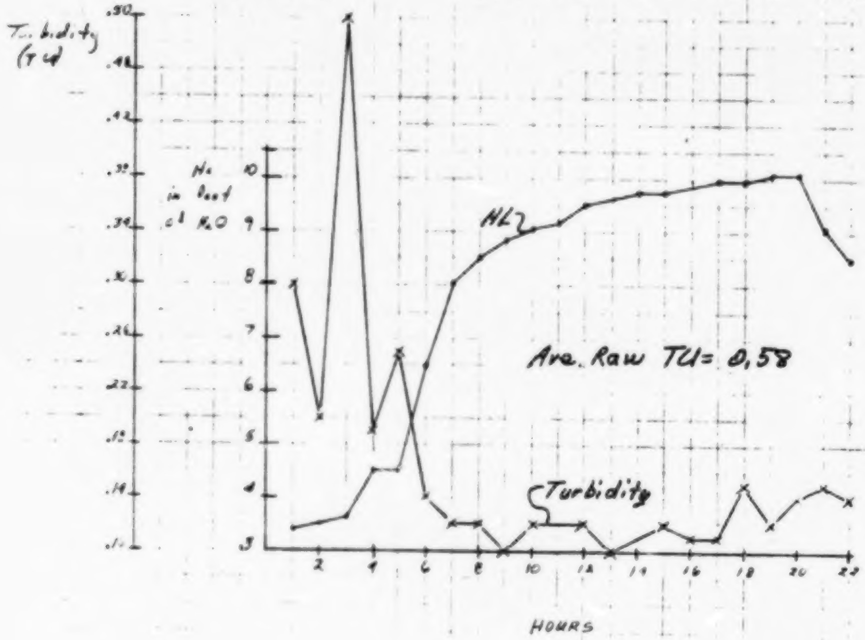
Head Loss and Effluent Turbidity Curves
BIF-2 Run- 90



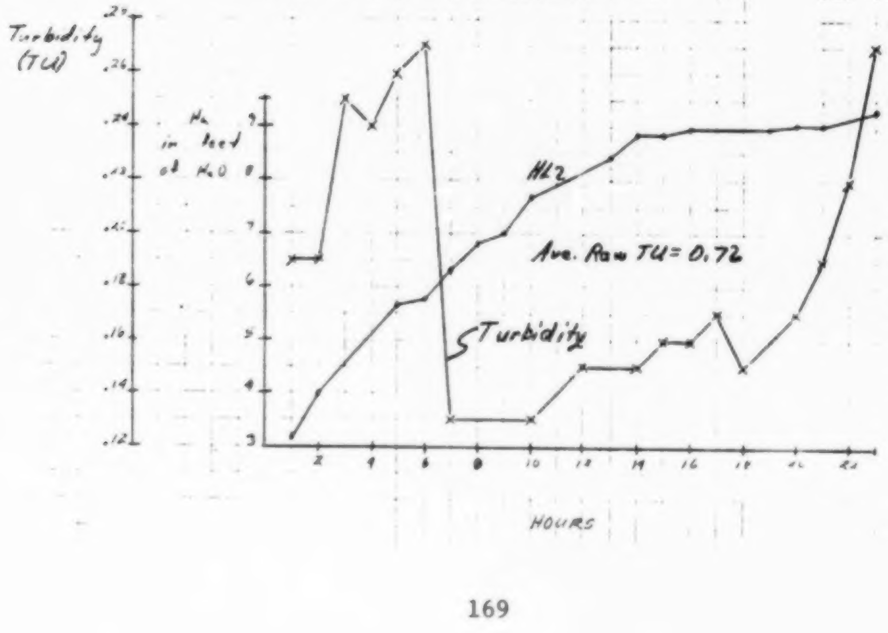
Head Loss and Effluent Turbidity Curves
BIF- 2 Run- 91



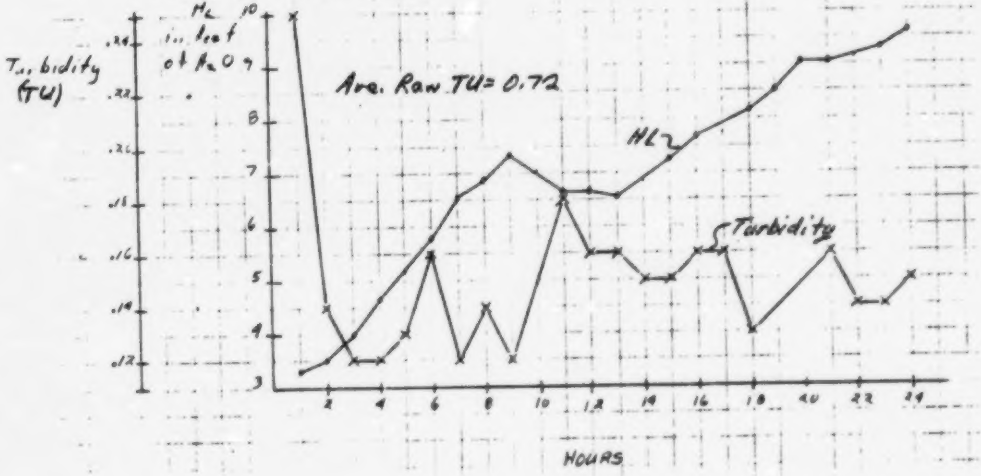
Head Loss and Effluent Turbidity Curves
BIF-2 Run- 92



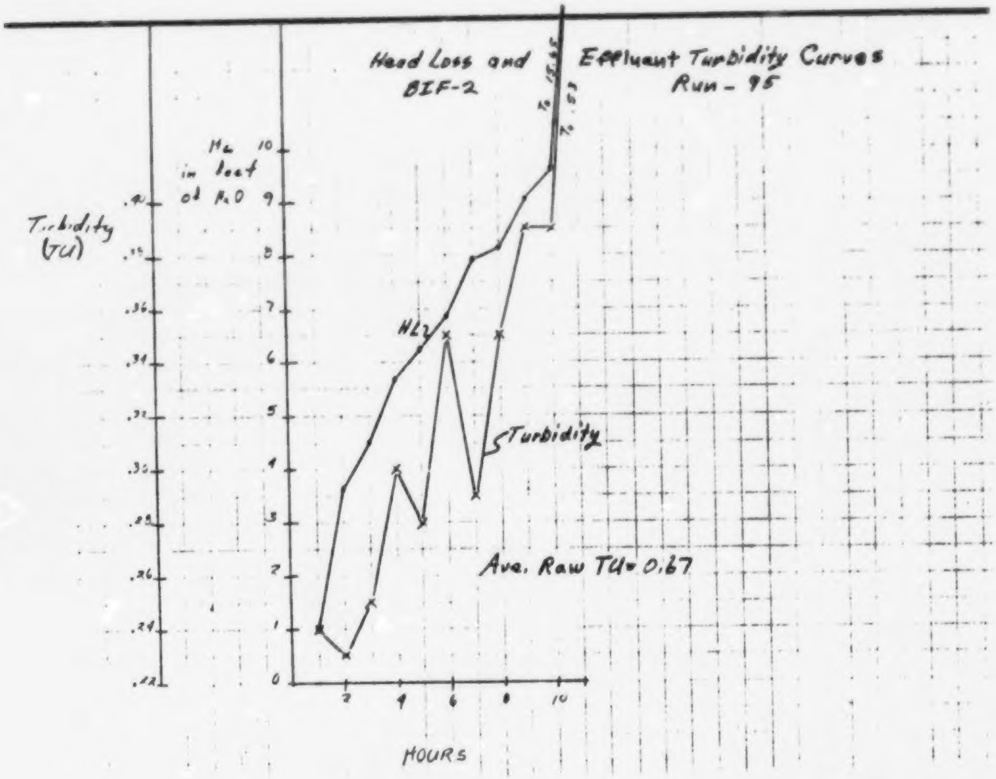
Head Loss and Effluent Turbidity Curves
BIF-2 Run- 93

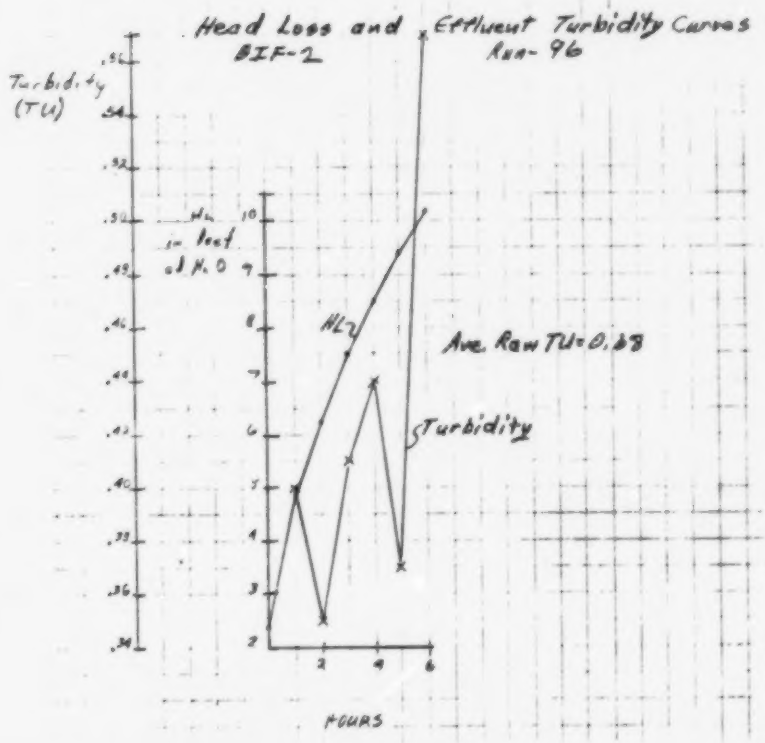


Head Loss and Effluent Turbidity Curves
BIF-2 Run- 94

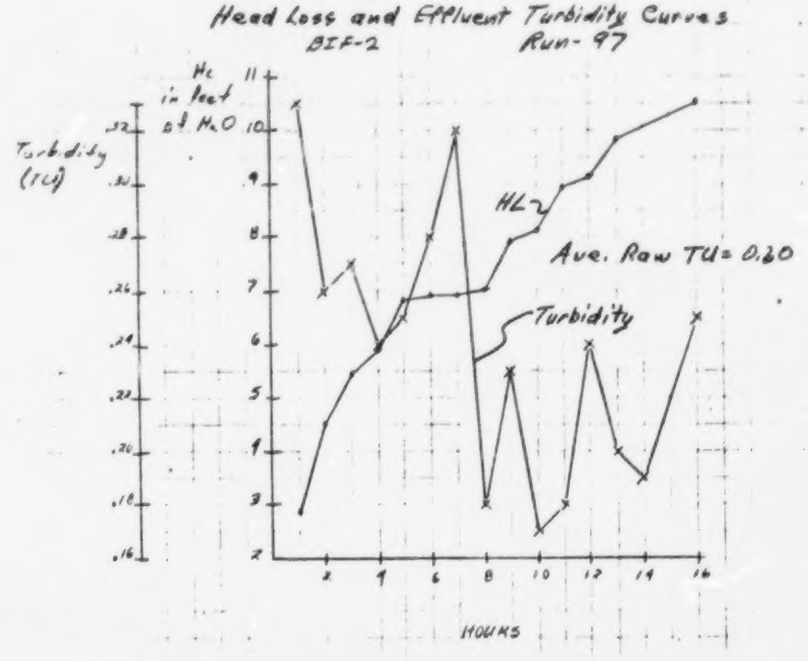


Head Loss and Effluent Turbidity Curves
BIF-2 Run - 95



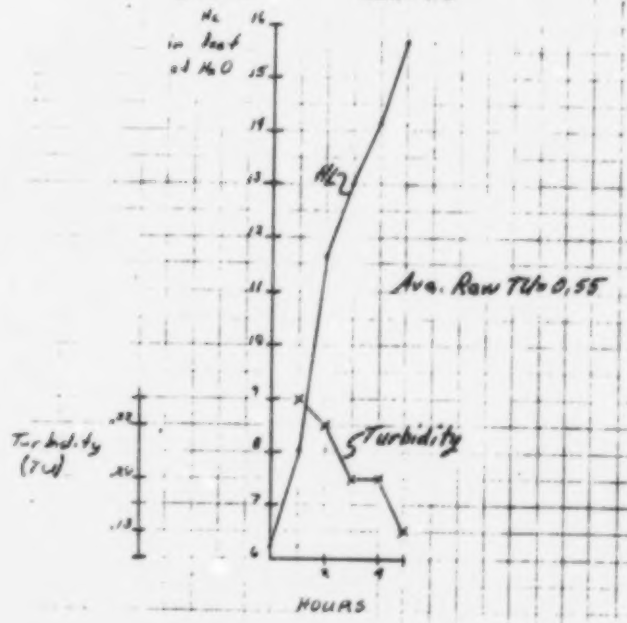


Head Loss and Effluent Turbidity Curves
BIF-2 Run-96

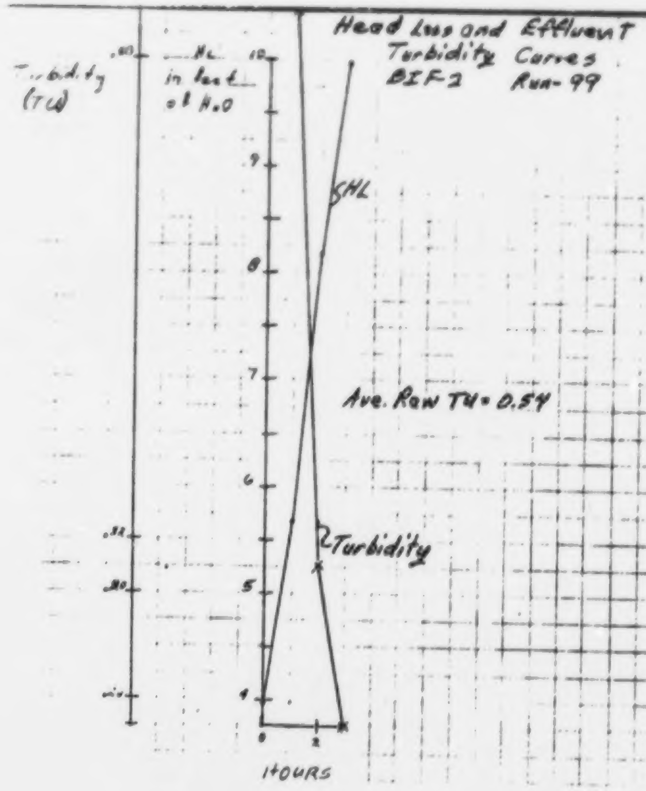


Head Loss and Effluent Turbidity Curves
BIF-2 Run-97

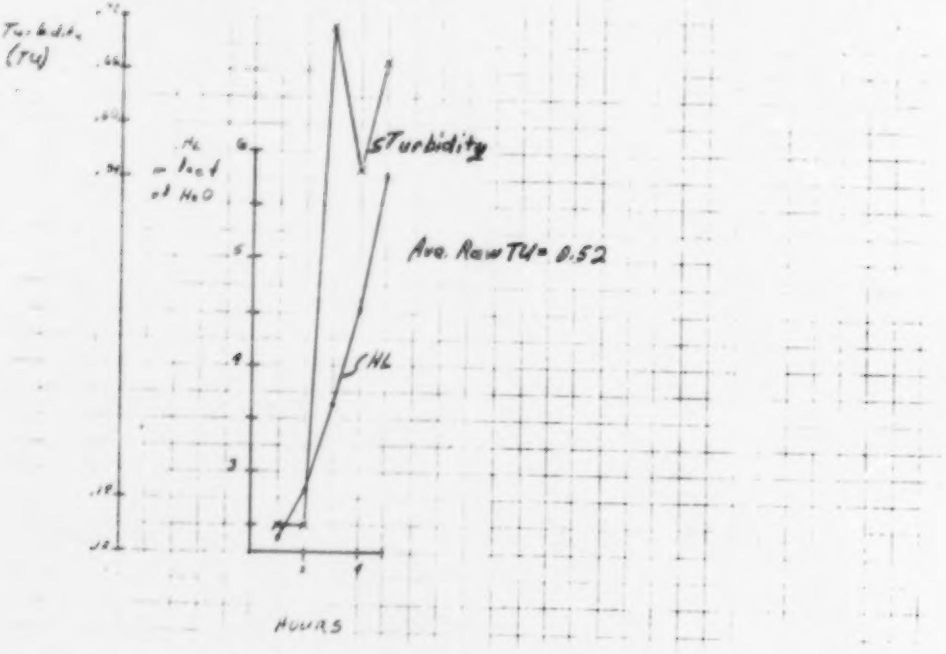
Head Loss and Effluent Turbidity Curves
BIF-2 Run- 98



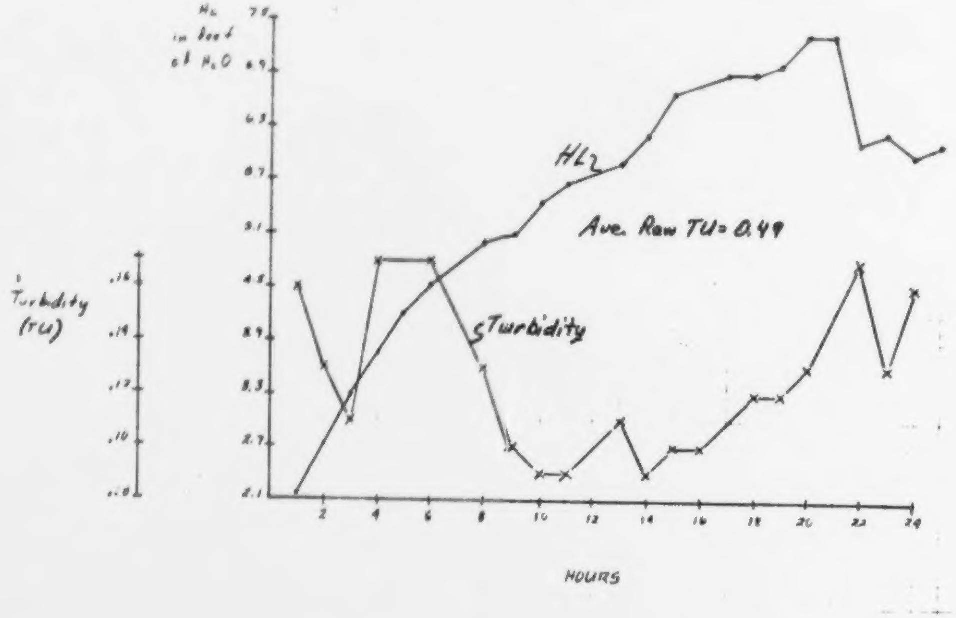
Head Loss and Effluent Turbidity Curves
BIF-2 Run- 99



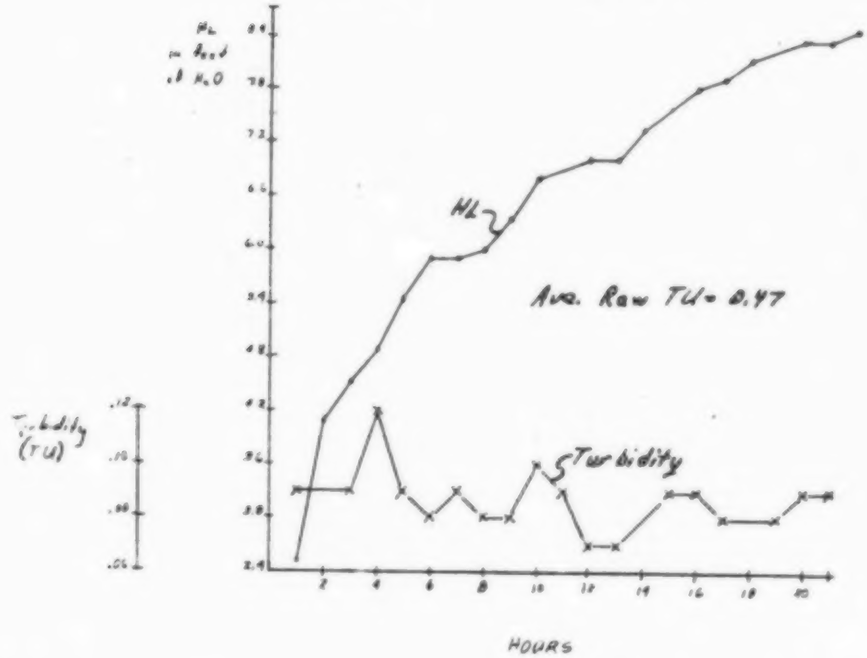
Head Loss and Effluent Turbidity Curves
BIF-2 Run-100



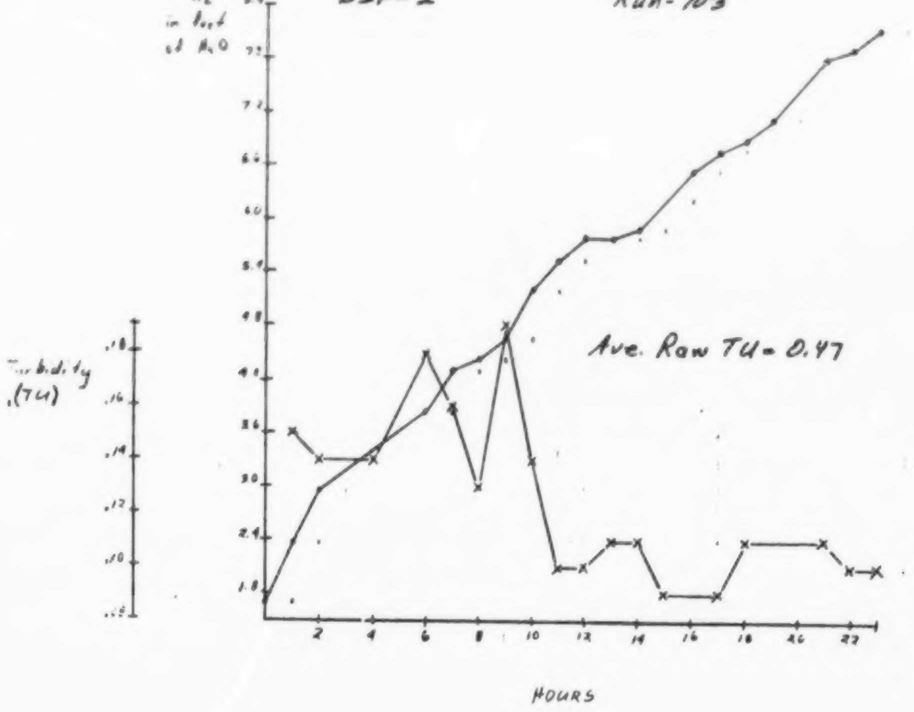
Head Loss and Effluent Turbidity Curves
BIF-2 Run-101

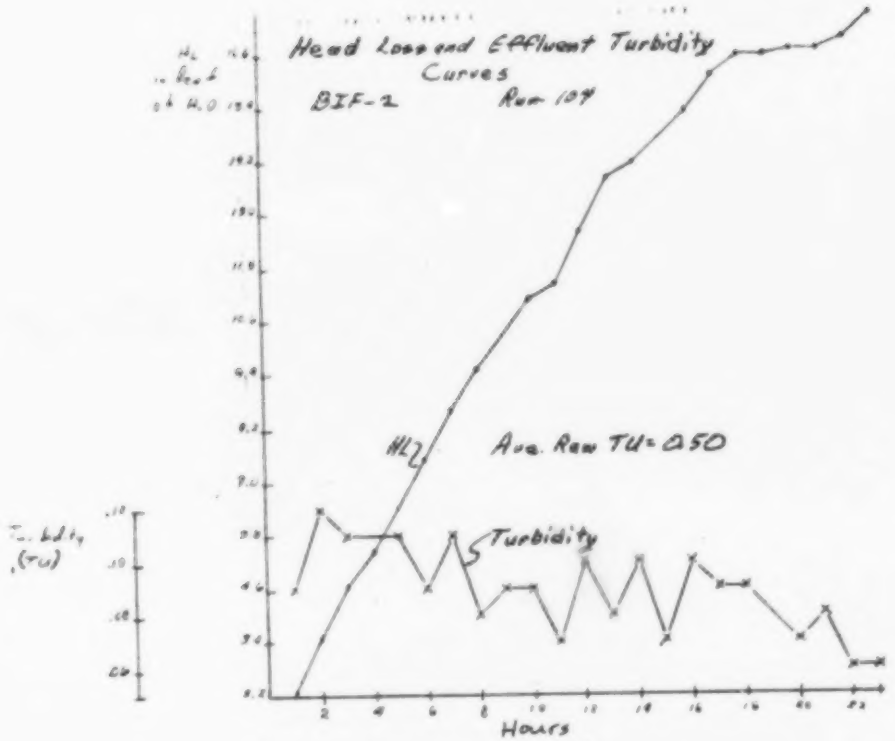


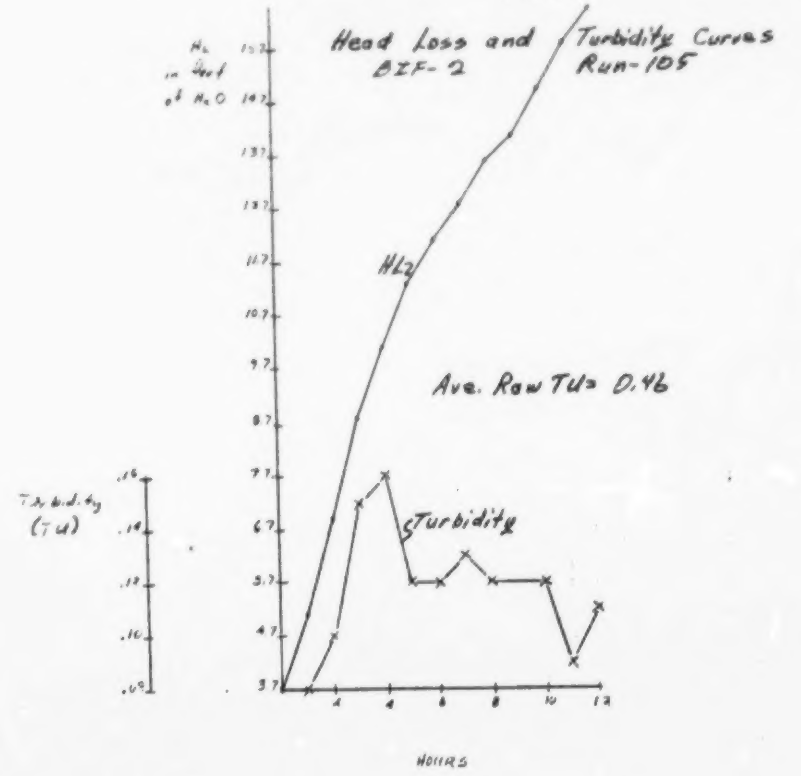
Head Loss and Effluent Turbidity Curves
BIF-2 Run-102

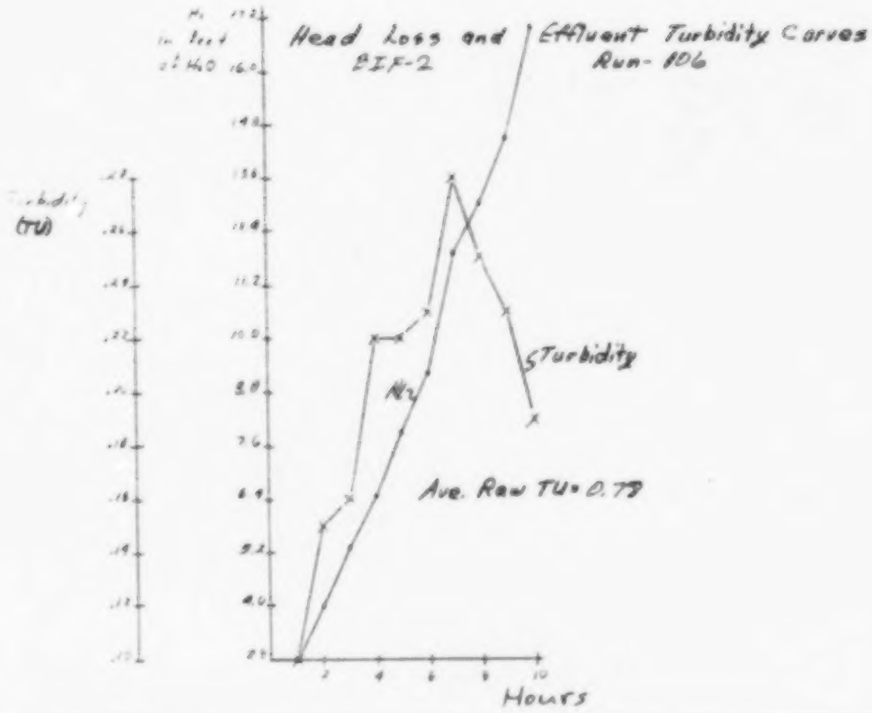


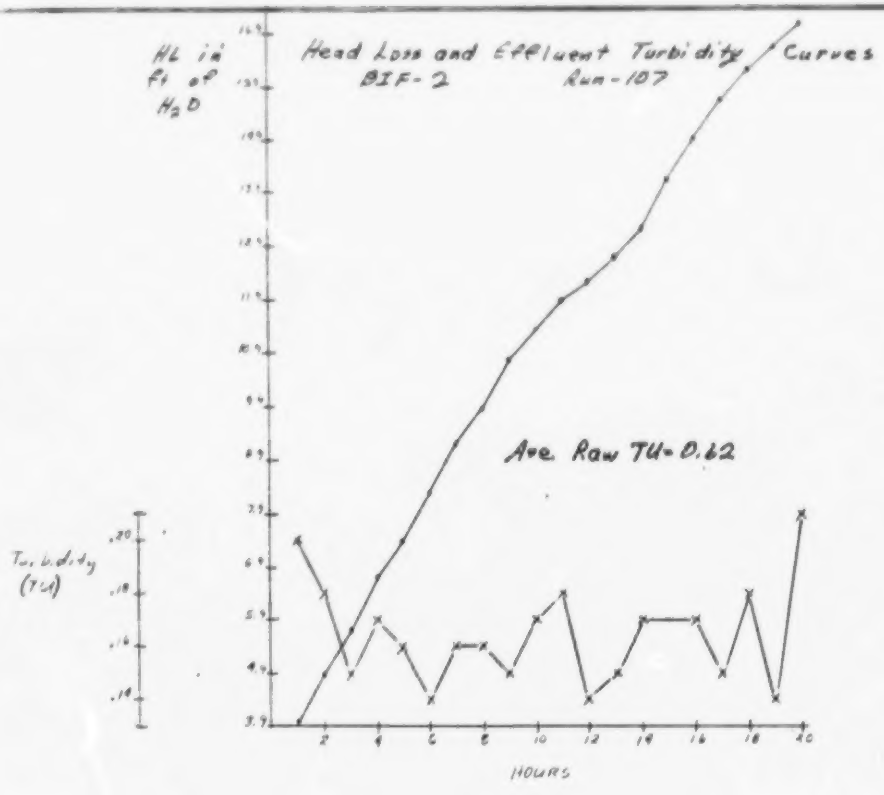
Head Loss and Effluent Turbidity Curves
BIF-2 Run-103

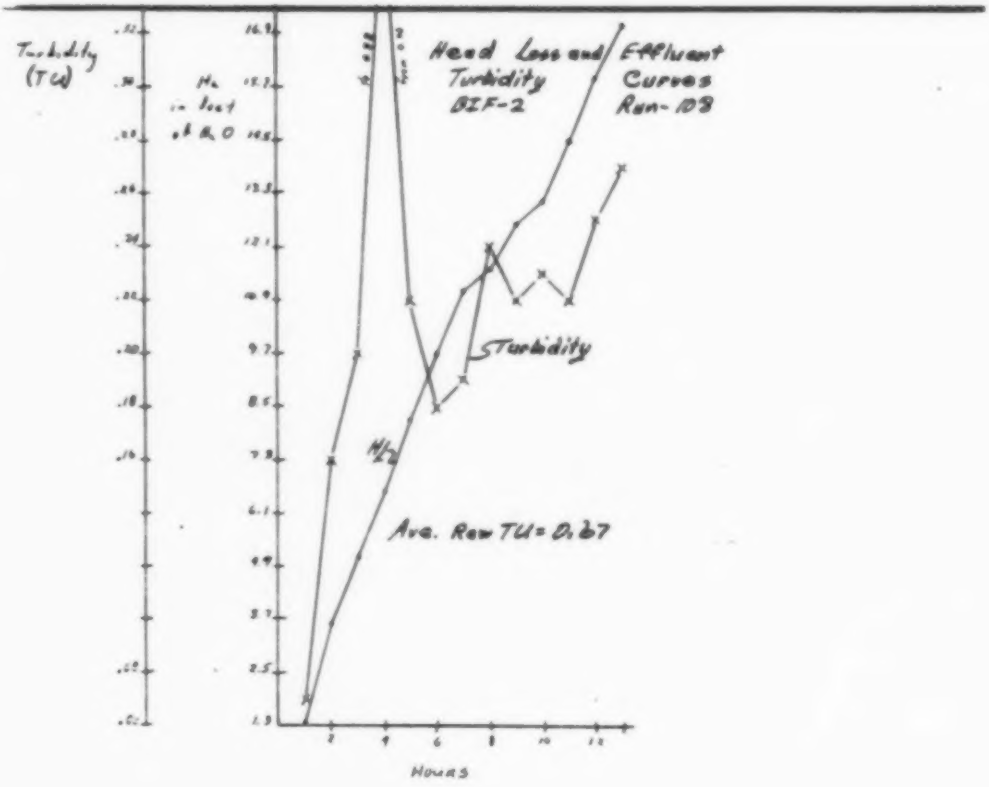


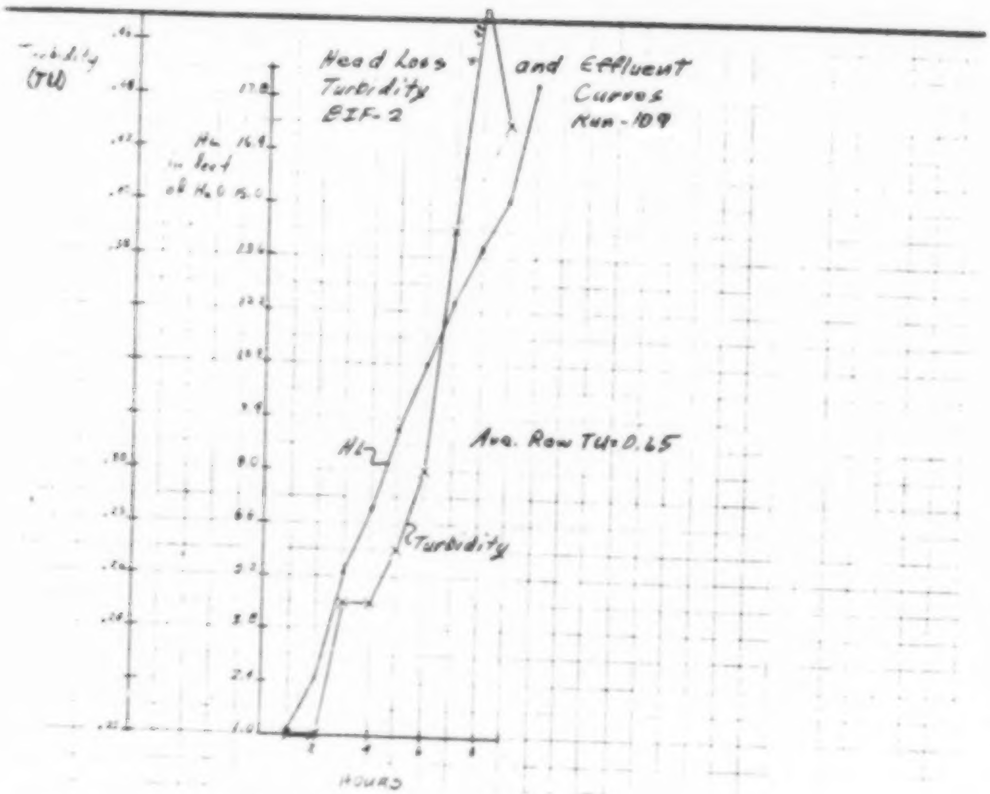

Head Loss and Effluent Turbidity Curves
BIF-2
Run-104
H_L in feet of H_2O
16.6
15.4
14.2
13.0
11.8
10.6
9.4
8.2
7.0
5.8
4.6
3.4
2.2
HL2
Ave. Raw TU= 0.50
Turbidity (TU)
.10
.08
.06
Turbidity
2
4
6
8
10
12
14
16
18
20
22
Hours

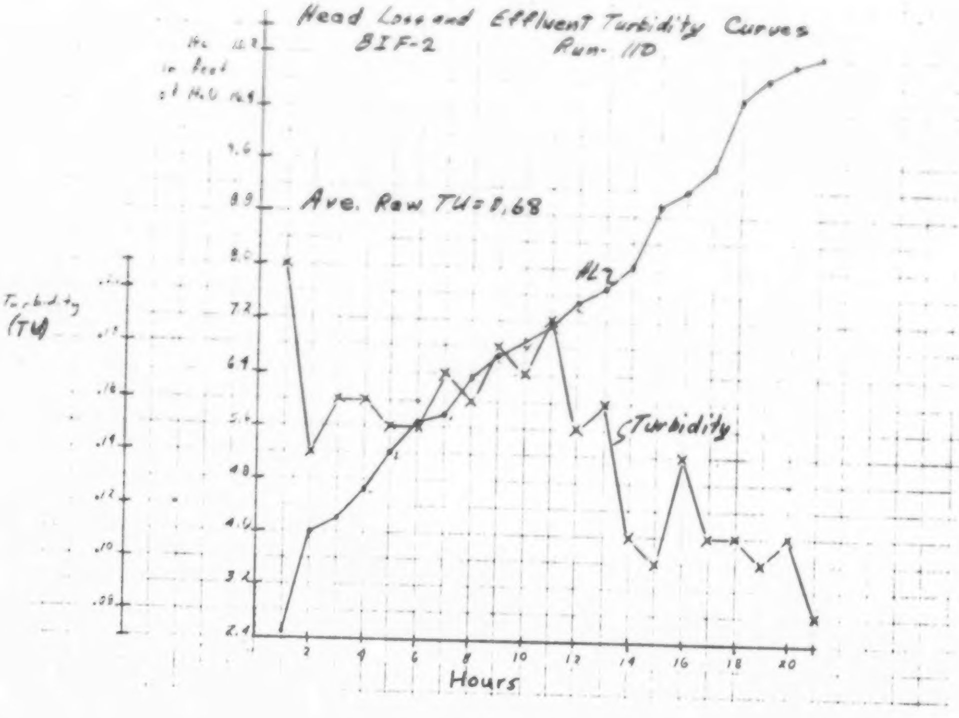

Head Loss and Turbidity Curves
BIF-2
Run-105
H_L in feet of H_2O
15.7
14.7
13.7
12.7
11.7
10.7
9.7
8.7
7.7
6.7
5.7
4.7
3.7
HL2
Ave. Raw TU= 0.46
Turbidity (TU)
.16
.14
.12
.10
.08
Turbidity
2
4
6
8
10
12
HOURS

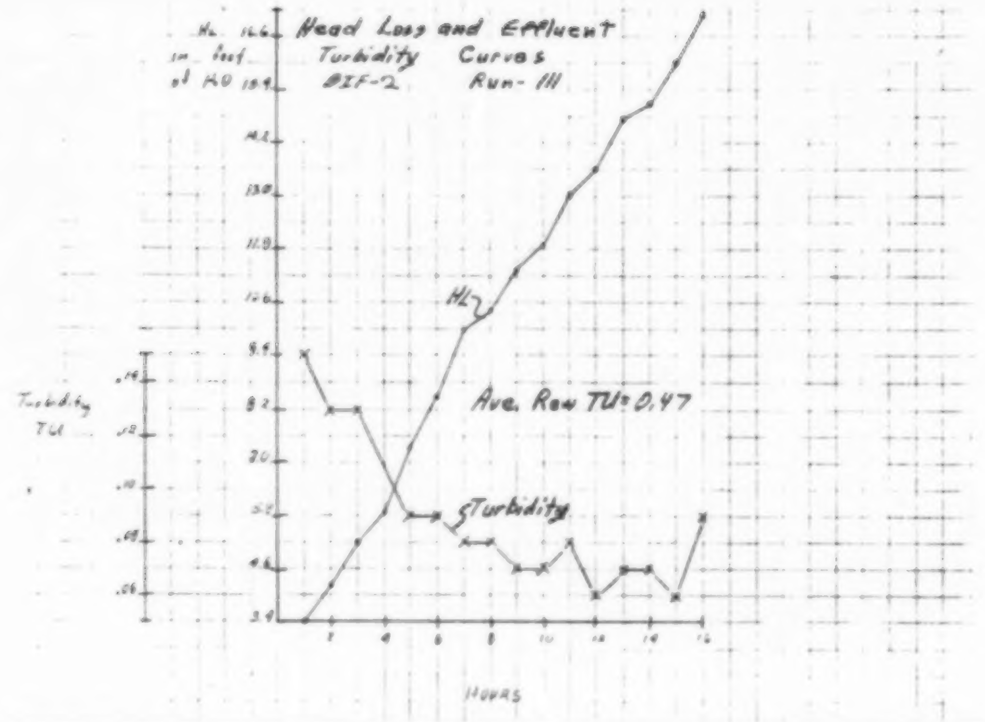

Head Loss and Effluent Turbidity Curves
BIF-2
Run-106
HL in feet of H2O
17.2
16.0
14.8
13.6
12.4
11.2
10.0
8.8
7.6
6.4
5.2
4.0
2.8
Turbidity (TU)
.28
.26
.24
.22
.20
.18
.16
.14
.12
.10
Turbidity
HL
Ave. Raw TU=0.78
2
4
6
8
10
Hours

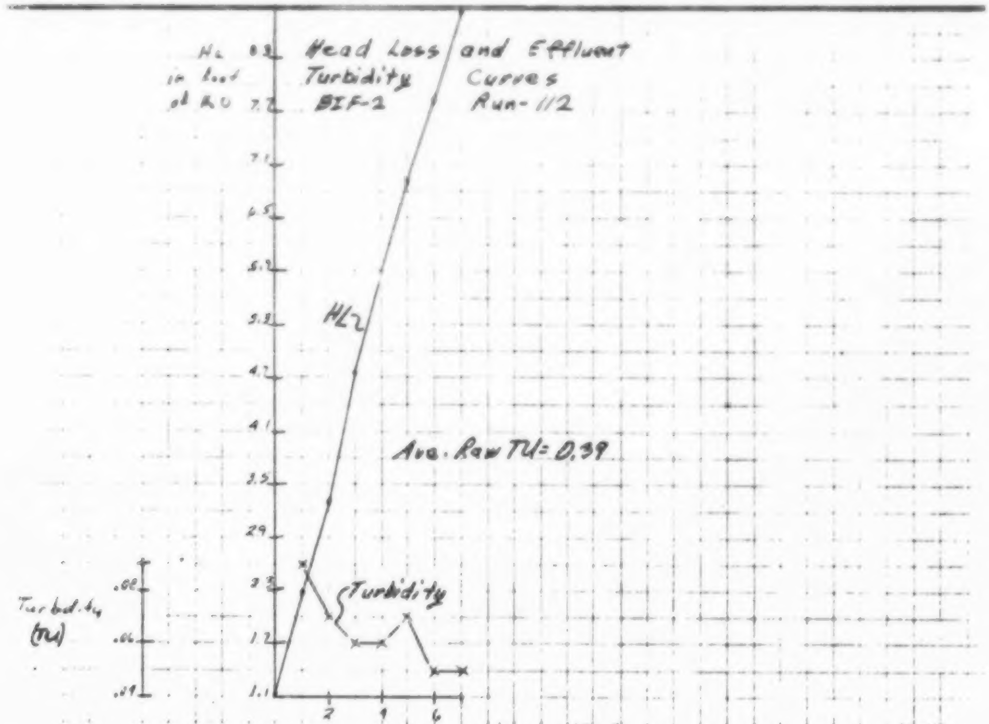

Head Loss and Effluent Turbidity Curves
BIF-2
Run-107
HL in ft of H2O
16.9
15.9
14.9
13.9
12.9
11.9
10.9
9.9
8.9
7.9
6.9
5.9
4.9
3.9
Turbidity (TU)
.20
.18
.16
.14
Ave. Raw TU=0.62
2
4
6
8
10
12
14
16
18
20
HOURS

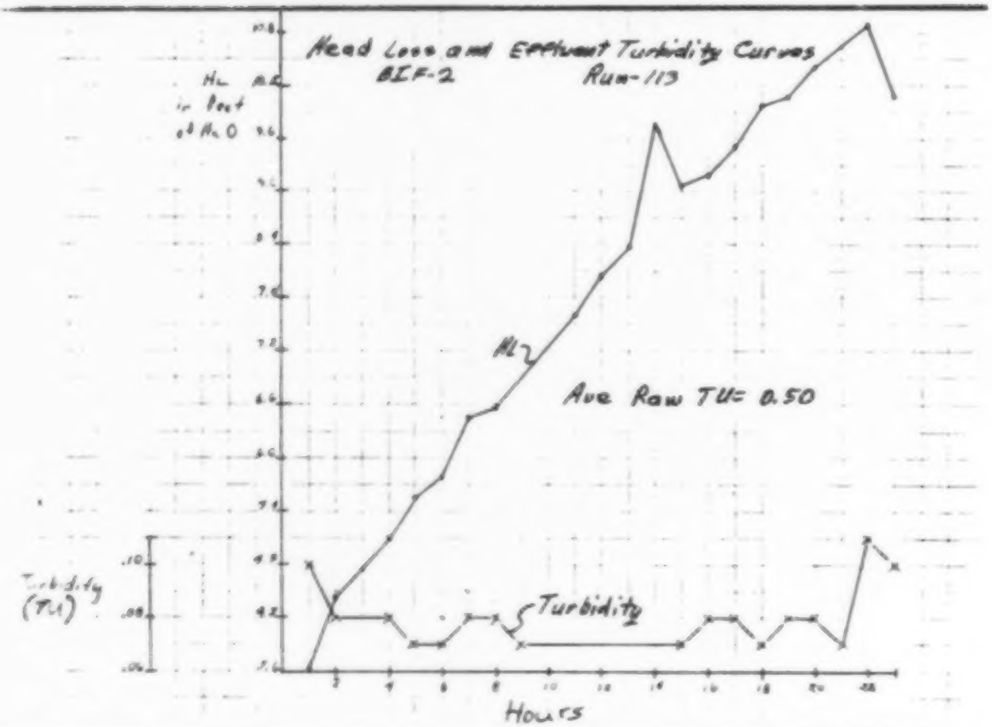

Head Loss and Effluent Turbidity Curves
BIF-2
Run-108
Turbidity (TU)
.32
.30
.28
.26
.24
.22
.20
.18
.16
.02
.00
H_L in feet of H_2O
16.9
15.7
14.5
13.3
12.1
10.9
9.7
8.5
7.3
6.1
4.9
3.7
2.5
1.3
Turbidity
H_L
Ave. Raw TU = 0.67
2
4
6
8
10
12
Hours

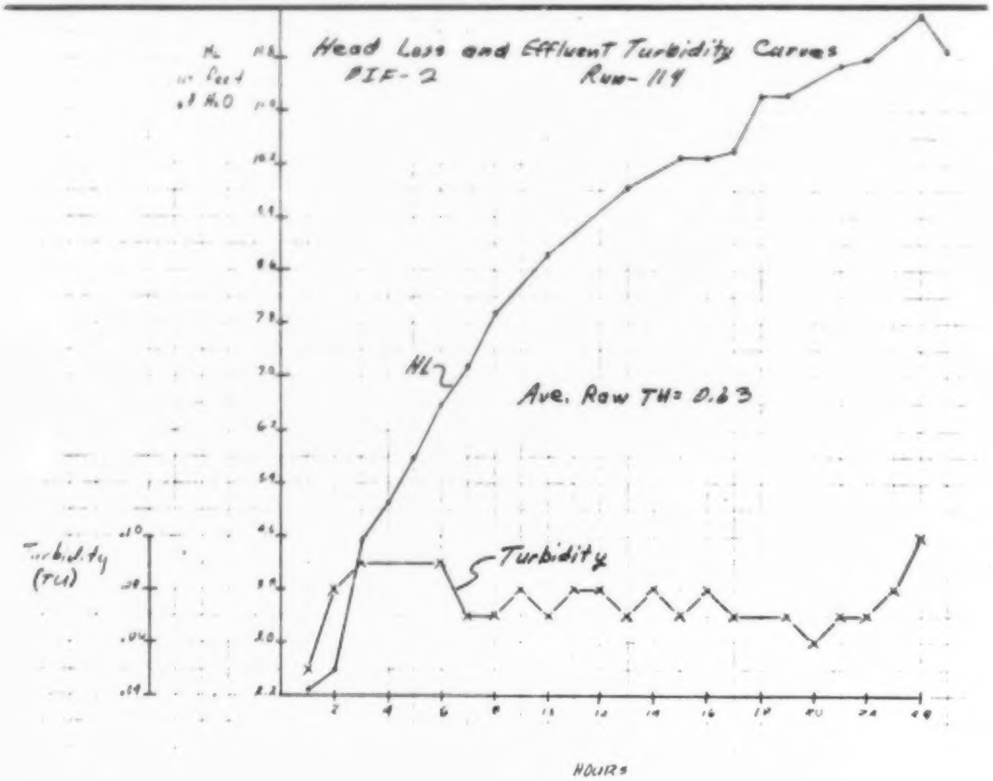

Head Loss and Effluent
Turbidity Curves
BIF-2
Run-109
Turbidity (TU)
HL in feet of H2O
17.8
16.4
15.0
13.6
12.2
10.8
9.4
8.0
6.6
5.2
3.8
2.4
1.0
.30
.22
HL
Turbidity
Ave. Raw TU=0.65
2
4
6
8
HOURS

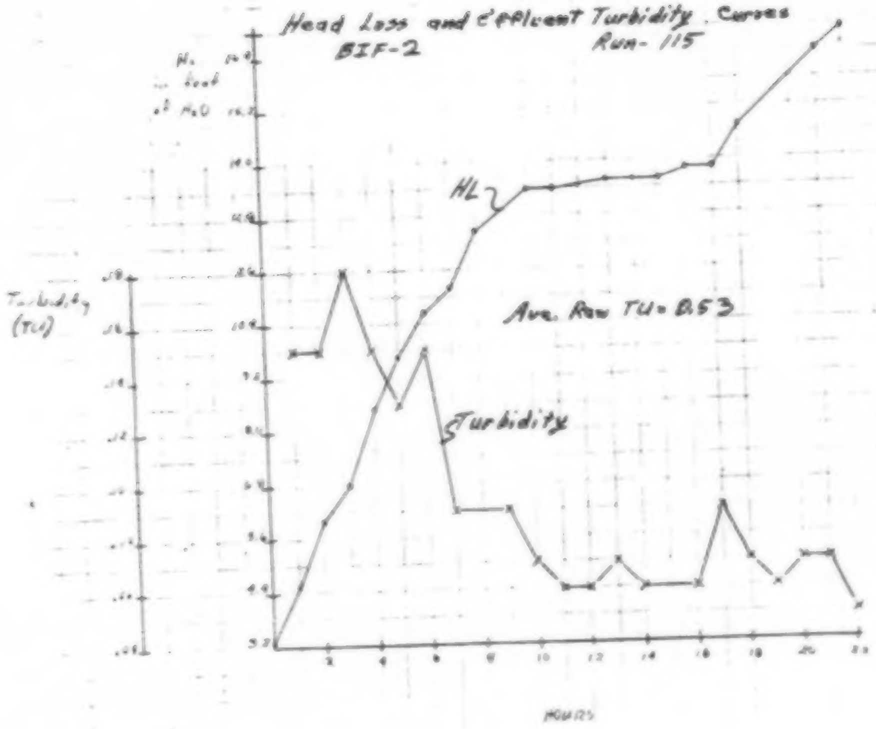

Head Loss and Effluent Turbidity Curves
BIF-2
Run-110
HL in feet of H2O
11.2
10.4
9.6
8.8
8.0
7.2
6.4
5.6
4.8
4.0
3.2
2.4
Turbidity (TU)
.18
.16
.14
.12
.10
.08
Ave. Raw TU=0.68
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
Hours

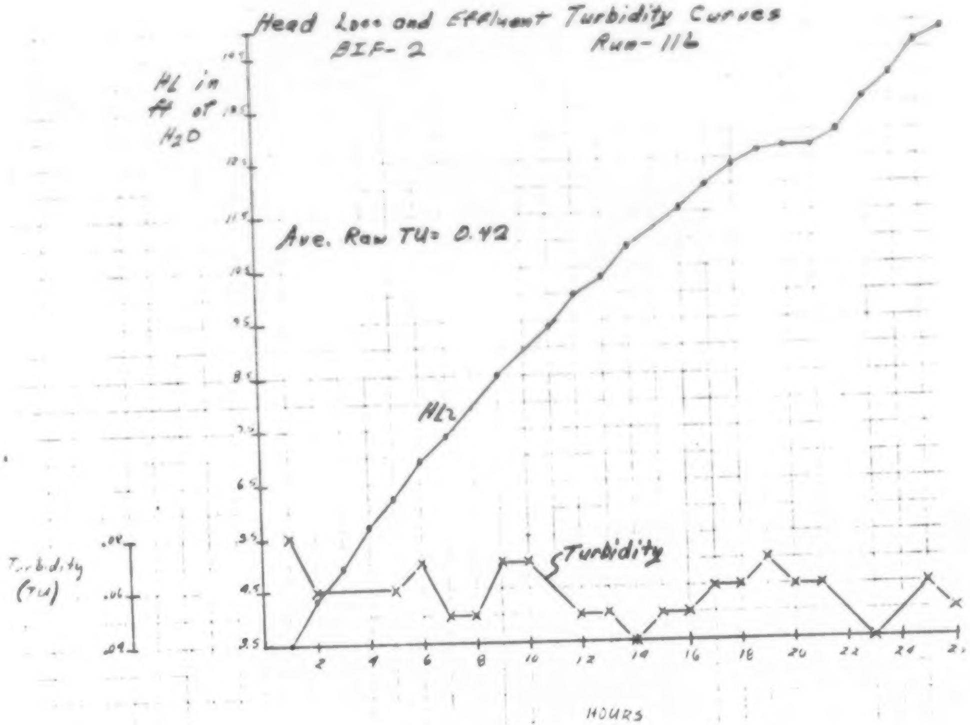

Head Loss and Effluent Turbidity Curves
BIF-2 Run-111
HL in feet of H2O
16.6
15.4
14.2
13.0
11.8
10.6
9.4
8.2
7.0
5.8
4.6
3.4
Turbidity TU
.14
.12
.10
.08
.06
HL
Turbidity
Ave. Raw TU=0.47
2
4
6
8
10
12
14
16
HOURS

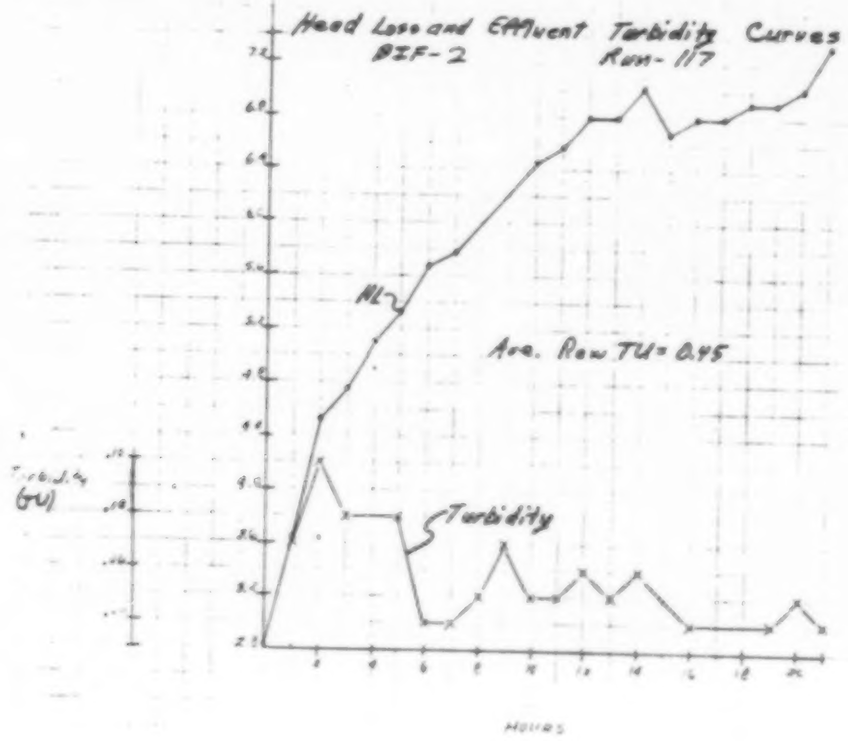

Head Loss and Effluent Turbidity Curves
BIF-2 Run-112
HL in feet of H2O
8.3
7.7
7.1
6.5
5.9
5.3
4.7
4.1
3.5
2.9
2.3
1.7
1.1
Turbidity (TU)
.08
.06
.04
HL
Turbidity
Ave. Raw TU=0.39
2
4
6
HOURS

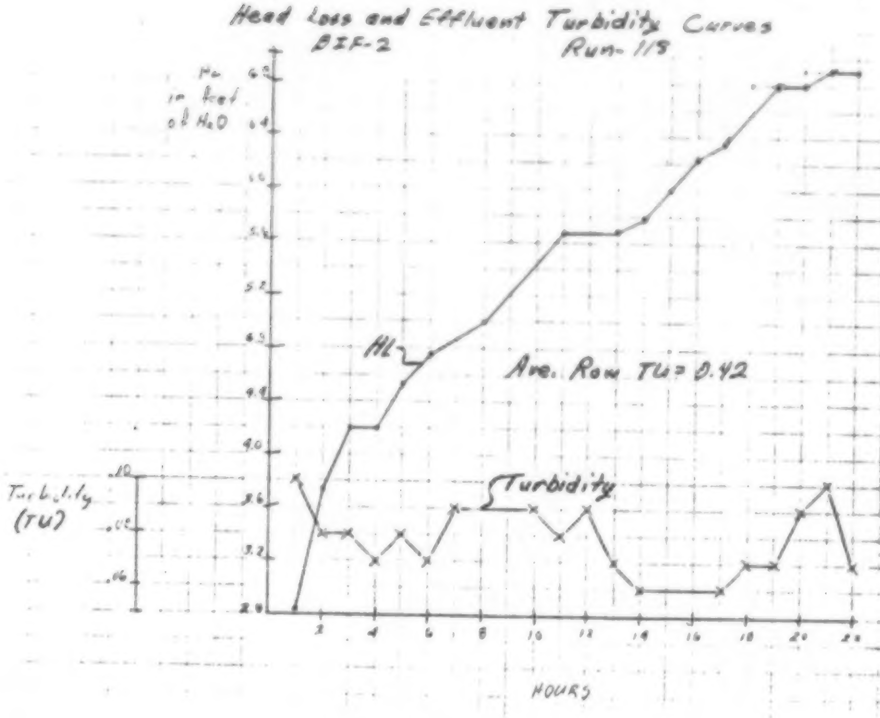

Head Loss and Effluent Turbidity Curves
BIF-2
Run-113
HL in feet of H2O
HL
Ave Raw TU= 0.50
Turbidity (TU)
.10
.08
.06
Turbidity
2
4
6
8
10
12
14
16
18
20
22
Hours

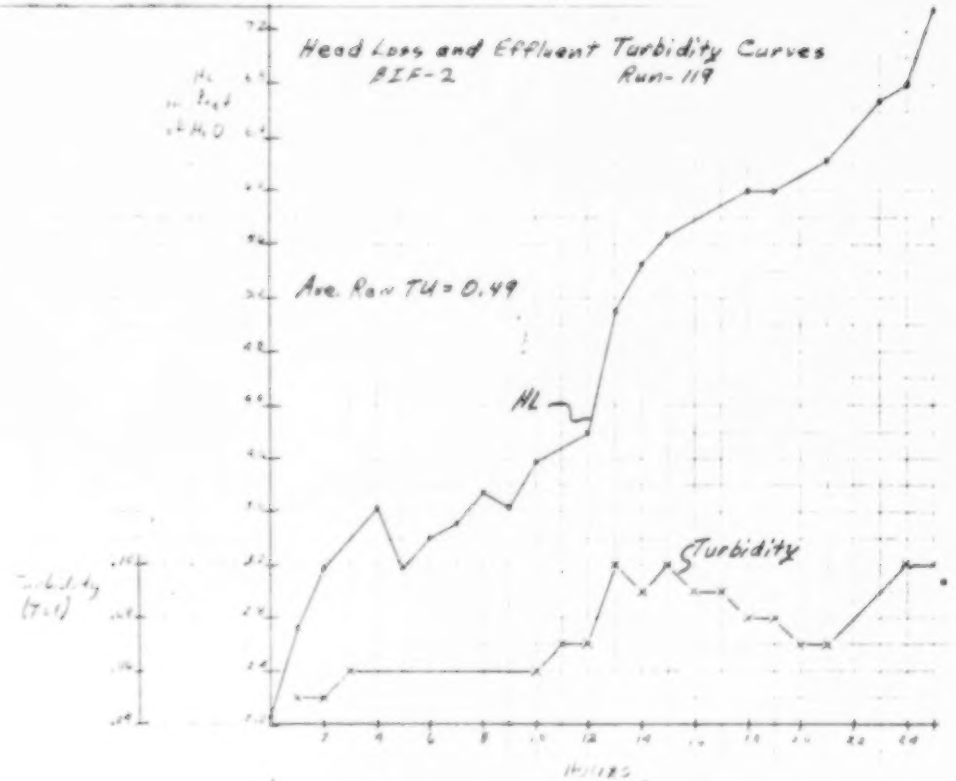

Head Loss and Effluent Turbidity Curves
BIF-2
Run-114
HL in feet of H2O
HL
Ave. Raw TU= 0.63
Turbidity (TU)
.10
.08
.04
Turbidity
2
4
6
8
10
12
14
16
18
20
24
HOURS

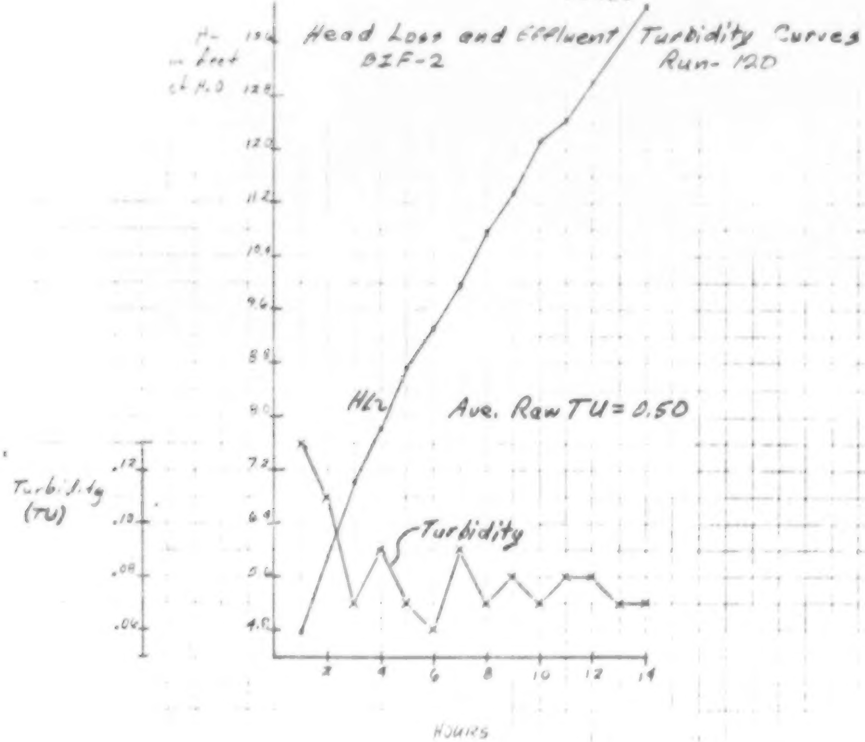

Head Loss and Effluent Turbidity Curves
BIF-2
Run- 115
HL in feet of H2O
Turbidity (TU)
HL
Turbidity
Ave. Raw TU= 0.53
2
4
6
8
10
12
14
16
18
20
HOURS

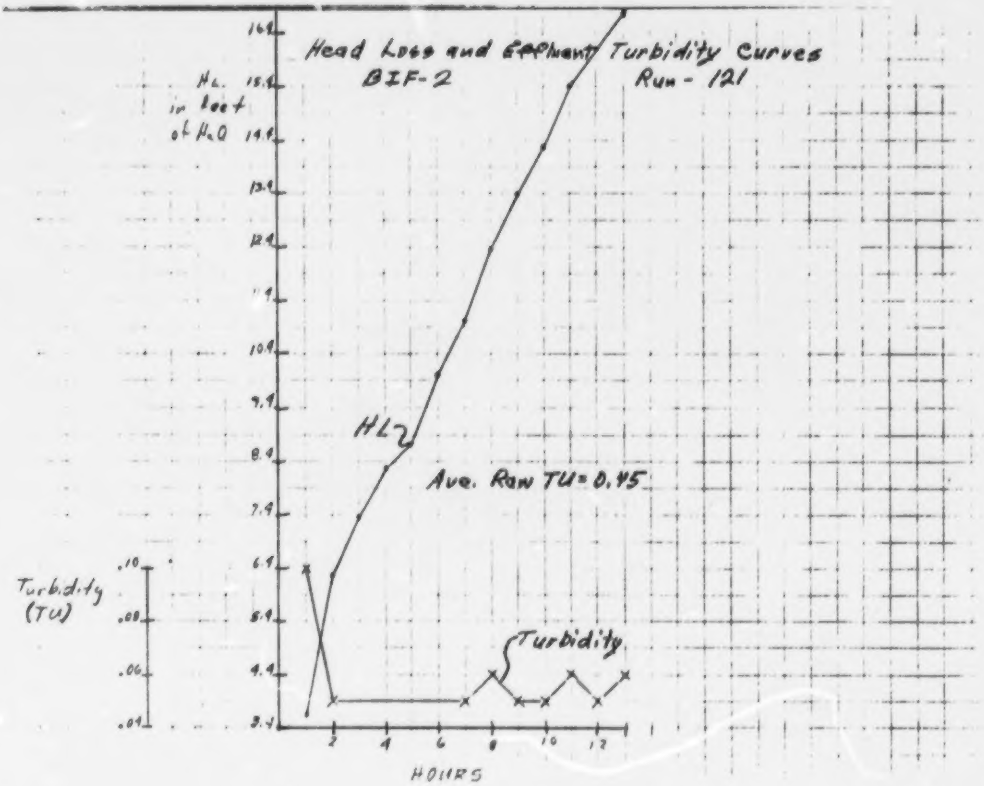

Head Loss and Effluent Turbidity Curves
BIF-2
Run- 116
HL in ft of H2O
Ave. Raw TU= 0.42
HL
Turbidity
Turbidity (TU)
.08
.06
3.5
4.5
5.5
6.5
7.5
8.5
9.5
10.5
11.5
2
4
6
8
10
12
14
16
18
20
22
24
HOURS

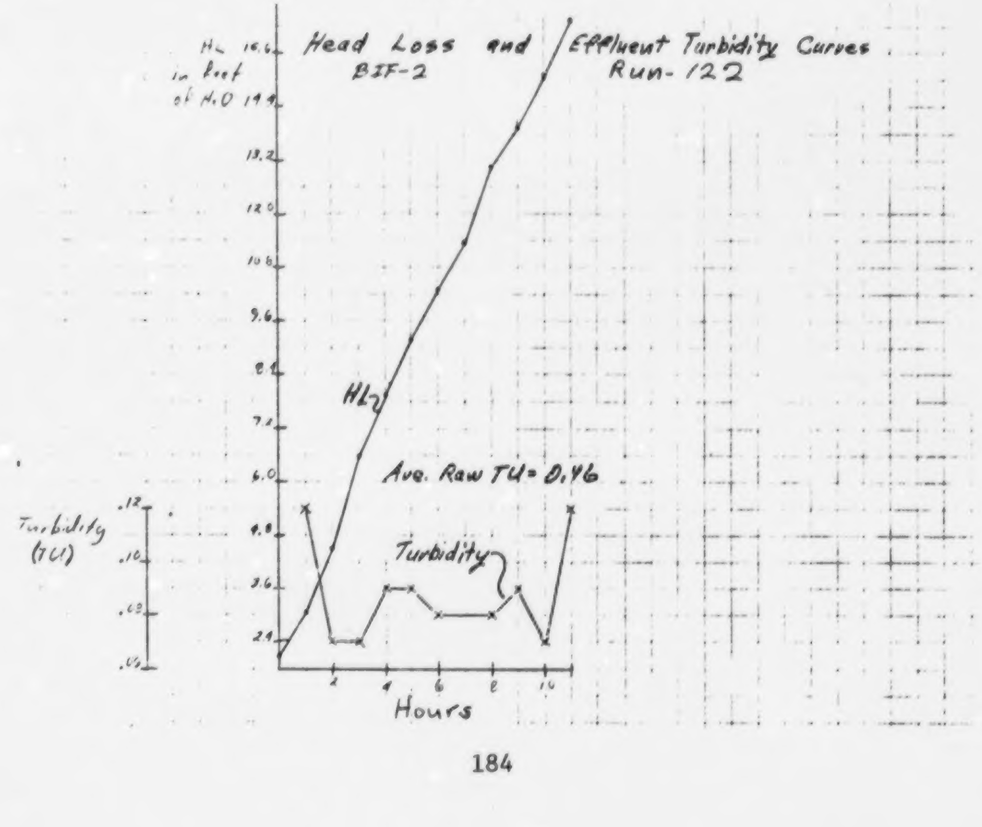

Head Loss and Effluent Turbidity Curves
BIF-2
Run-117
HL
Ave. Raw TU= 0.45
Turbidity
Turbidity
(TU)
.10
2
4
6
8
10
12
14
16
18
20
HOURS


Head Loss and Effluent Turbidity Curves
BIF-2
Run-118
HL
in feet
of H2O
6.4
5.2
4.0
3.6
3.2
2.8
HL
Ave. Raw TU= 0.42
Turbidity
Turbidity
(TU)
.10
.08
.06
2
4
6
8
10
12
14
16
18
20
HOURS

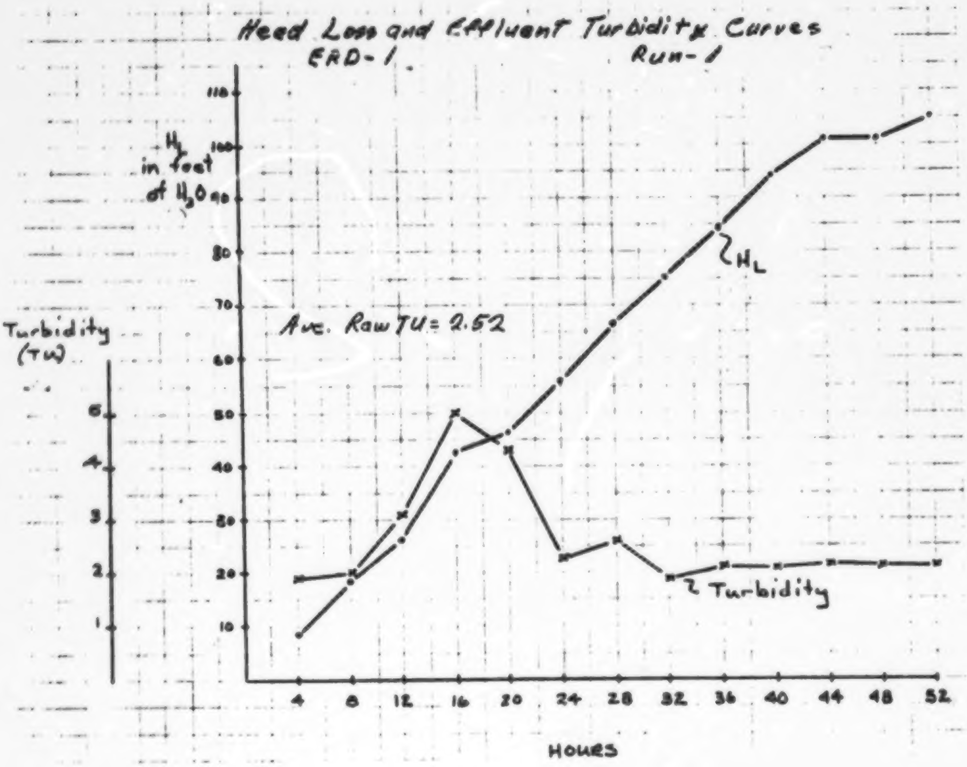

Head Loss and Effluent Turbidity Curves
BIF-2
Run-119
HL in feet of H₂O
7.2
Ave. Raw TU = 0.49
HL
Turbidity
Turbidity (TU)
2
4
6
8
10
12
14
22
24
Hours

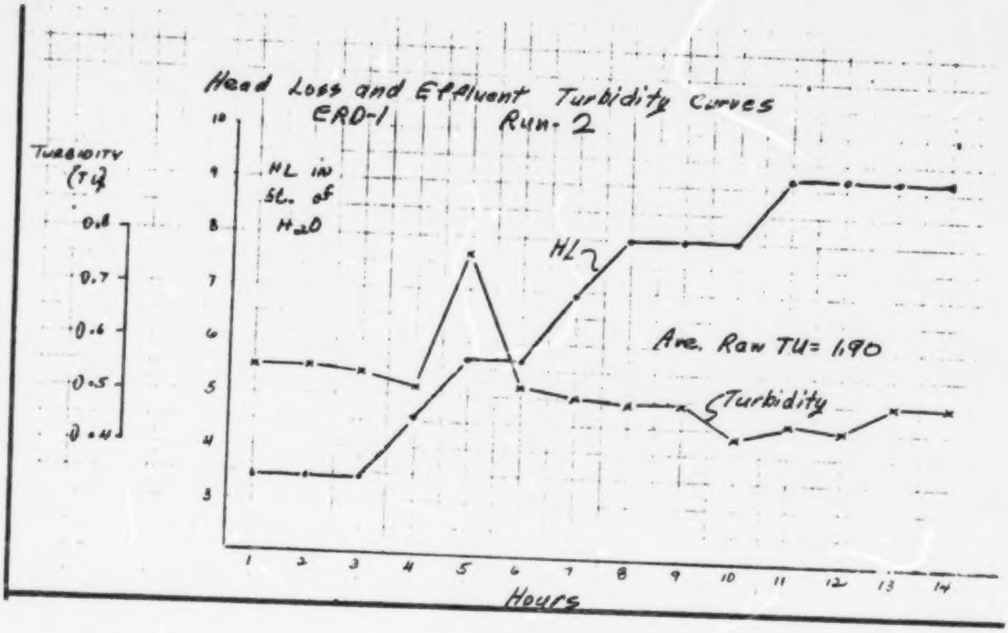

Head Loss and Effluent Turbidity Curves
BIF-2
Run-120
HL in feet of H₂O
13.6
12.8
12.0
11.2
10.4
9.6
8.8
8.0
7.2
6.4
5.6
4.8
HL
Ave. Raw TU = 0.50
Turbidity
Turbidity (TU)
.12
.10
.08
.06
2
4
6
8
10
12
14
Hours

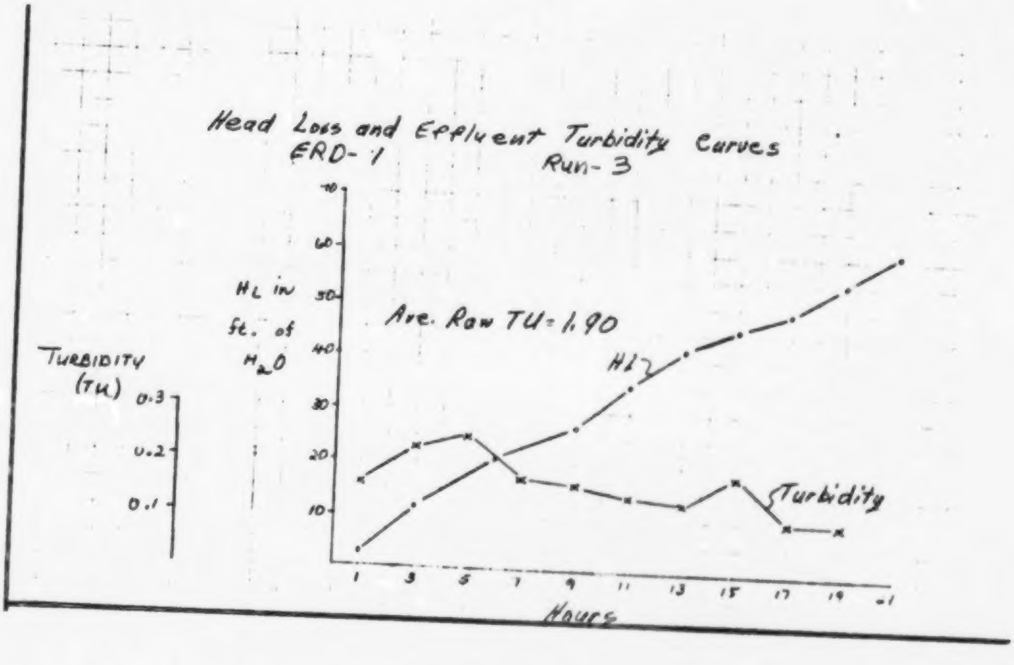

Head Loss and Effluent Turbidity Curves
BIF-2
Run- 121
HL in feet of H2O
16.4
15.4
14.4
13.4
12.4
11.4
10.4
9.4
8.4
7.4
6.4
5.4
4.4
3.4
HL
Ave. Raw TU= 0.45
Turbidity (TU)
.10
.08
.06
.04
Turbidity
2
4
6
8
10
12
HOURS

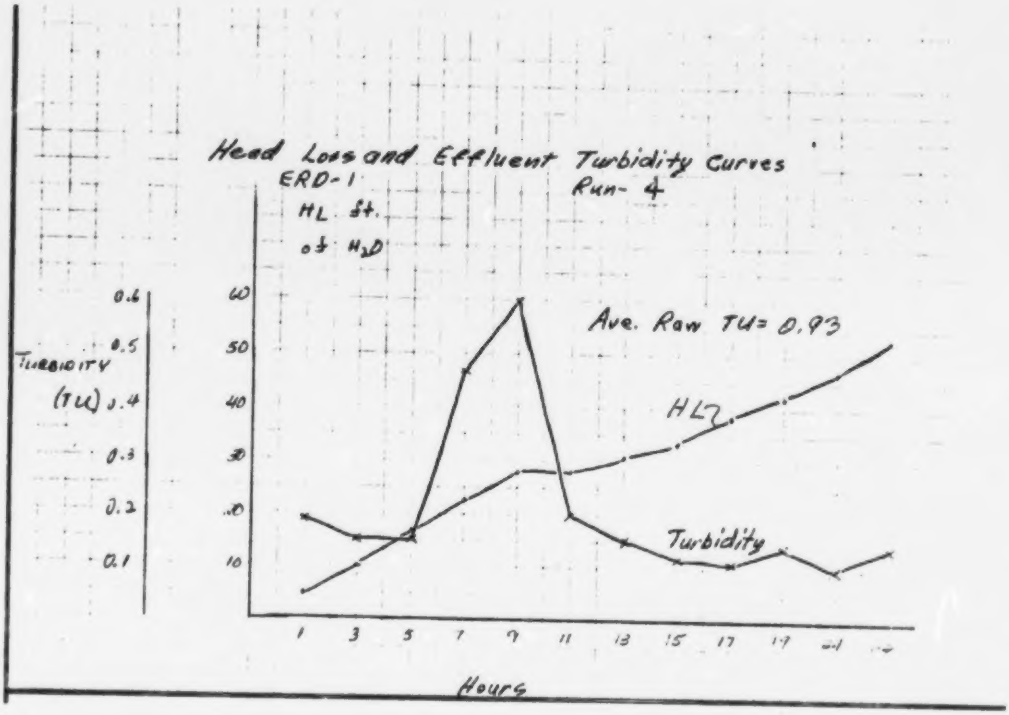

Head Loss and Effluent Turbidity Curves
BIF-2
Run- 122
HL in feet of H.O
16.6
14.4
13.2
12.0
10.8
9.6
8.4
7.2
6.0
4.8
3.6
2.4
HL
Ave. Raw TU= 0.46
Turbidity (TU)
.12
.10
.08
.06
Turbidity
2
4
6
8
10
Hours

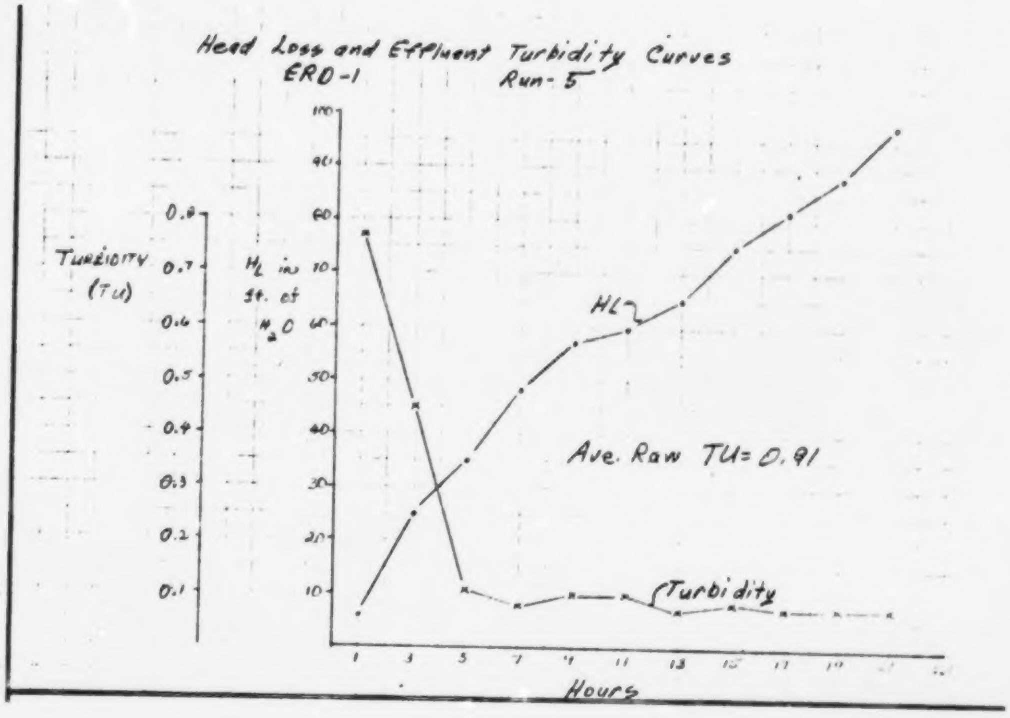
APPENDIX D-4 - PRESSURE DIATOMACEOUS EARTH FILTRATION (ERD) HEAD LOSS AND TURBIDITY CURVES



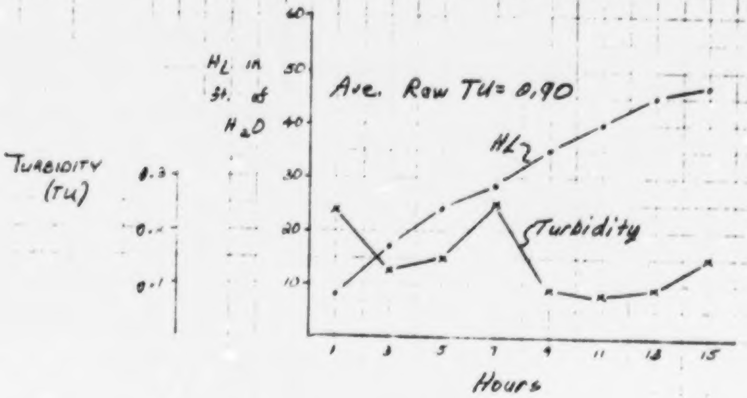

Head Loss and Effluent Turbidity Curves
ERD-1 Run-2
Turbidity (TU)
0.8
0.7
0.6
0.5
0.4
10
9
8
7
6
5
4
3
HL in ft. of H2O
HL
Ave. Raw TU= 1.90
Turbidity
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Hours


Head Loss and Effluent Turbidity Curves
ERD-1 Run-3
70
60
50
40
30
20
10
HL in ft. of H2O
Ave. Raw TU= 1.90
Turbidity (TU)
0.3
0.2
0.1
HL
Turbidity
1
3
5
7
9
11
13
15
17
19
21
Hours

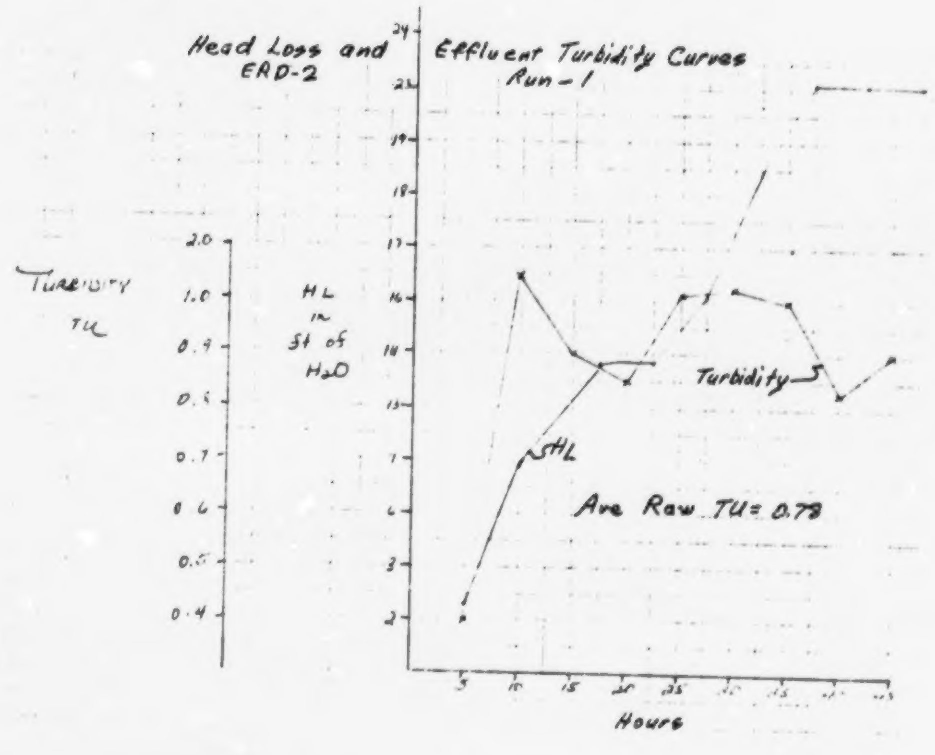

Head Loss and Effluent Turbidity Curves
ERD-1 Run- 4

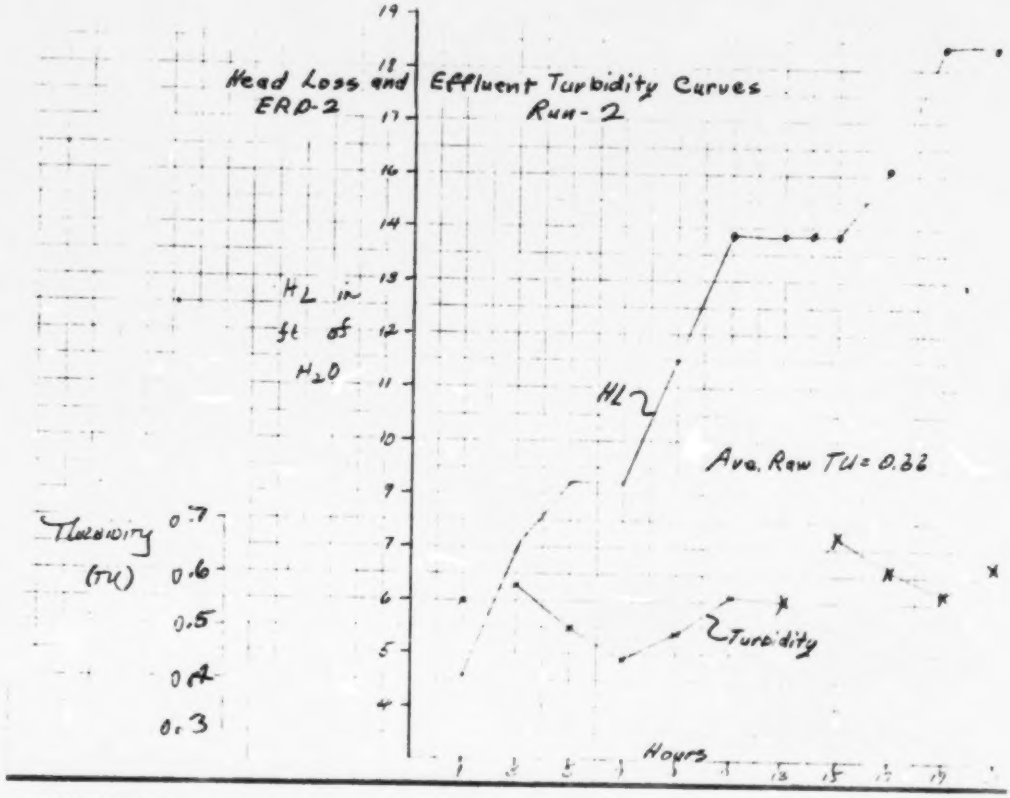

Head Loss and Effluent Turbidity Curves
ERD-1 Run- 5

Head Loss and Effluent Turbidity Curves
ERD-1 Run-6

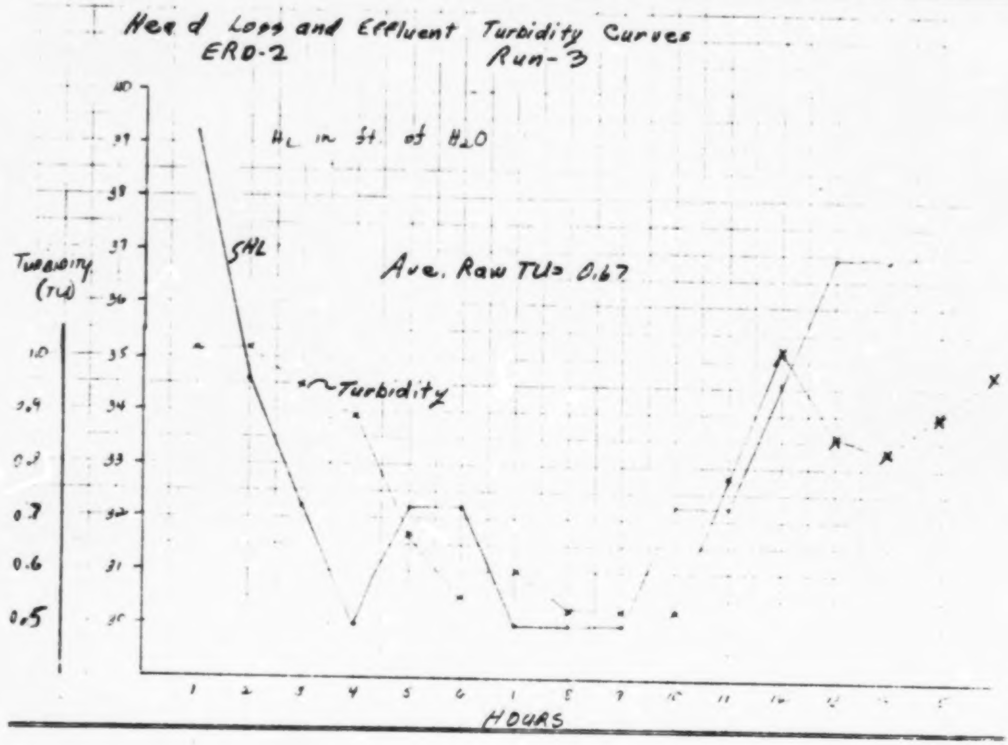


Head Loss and Effluent Turbidity Curves
ERD-2 Run-1

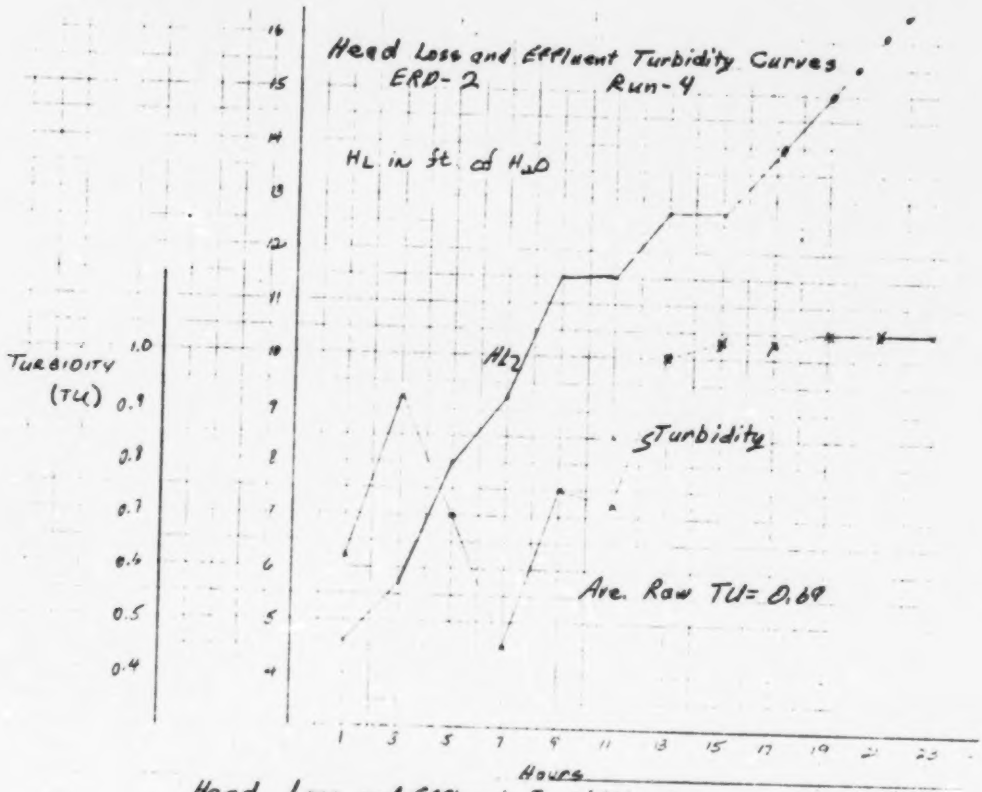




Head Loss and Effluent Turbidity Curves
ERD-2 Run- 2

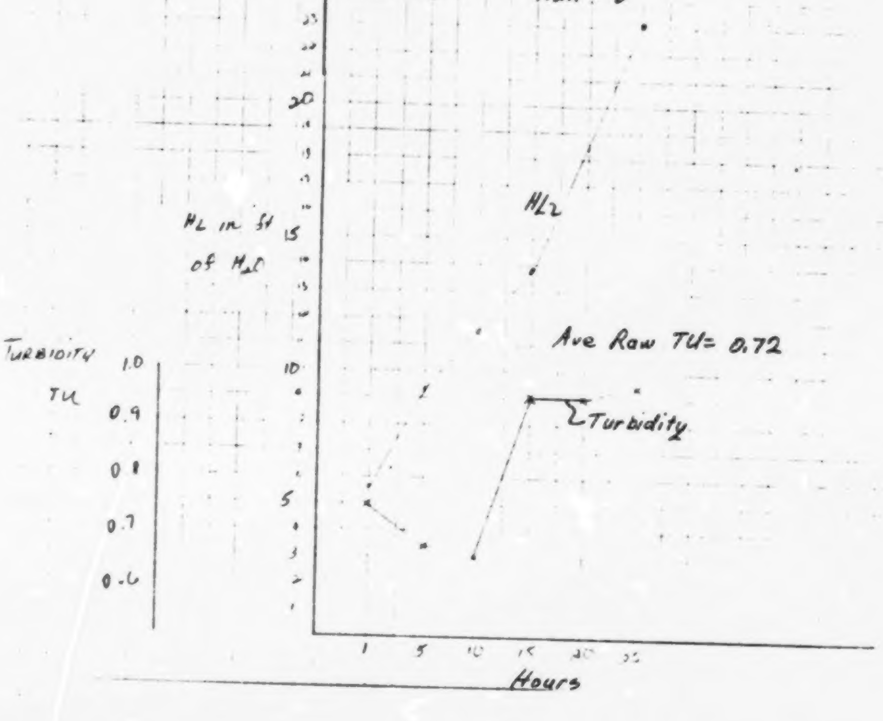


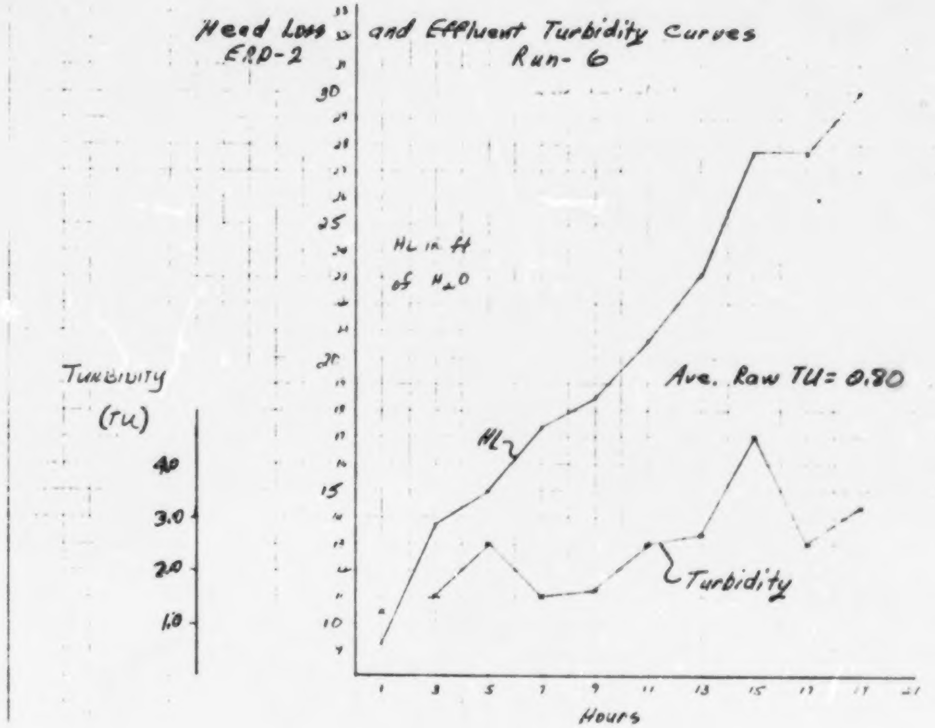
Head Loss and Effluent Turbidity Curves
ERD-2 Run-3

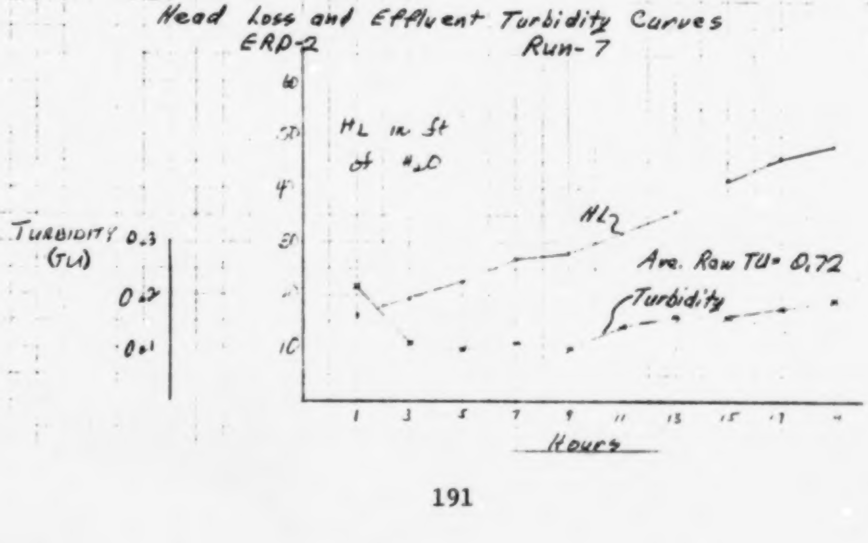


Head Loss and Effluent Turbidity Curves
ERD-2 Run-4

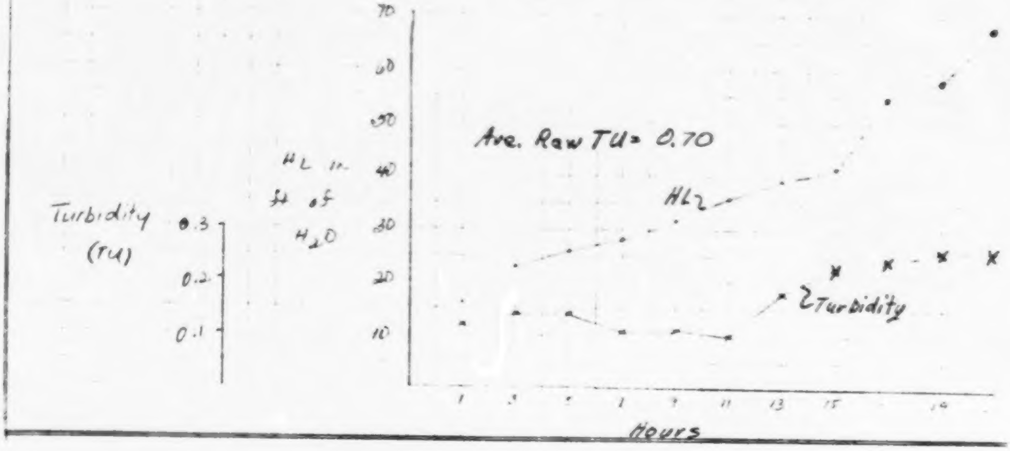
Head Loss and Effluent Turbidity Curves
ERD-2 Run-6



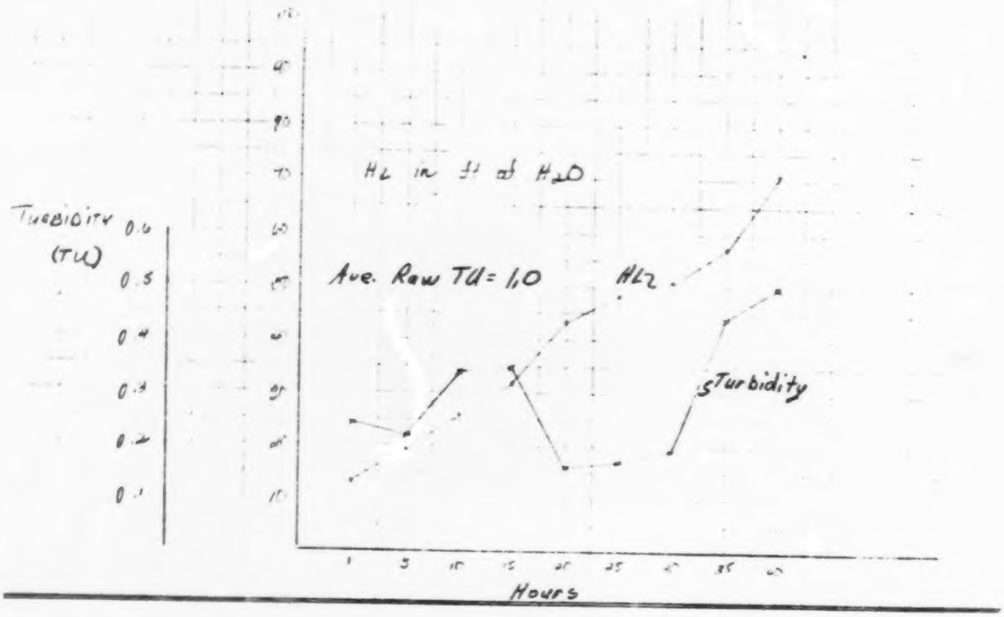

Head Loss and Effluent Turbidity Curves
ERD-2
Run- 6
HL in ft of H_2O
Turbidity (TU)
4.0
3.0
2.0
1.0
Ave. Raw TU= 0.80
HL
Turbidity
30
25
20
15
10
1
3
5
7
9
11
13
15
17
19
21
Hours


Head Loss and Effluent Turbidity Curves
ERD-2
Run-7
HL in ft of H_2O
Turbidity (TU)
0.3
0.2
0.1
60
50
40
30
20
10
HL
Ave. Raw TU= 0.72
Turbidity
1
3
5
7
9
11
13
15
17
19
Hours

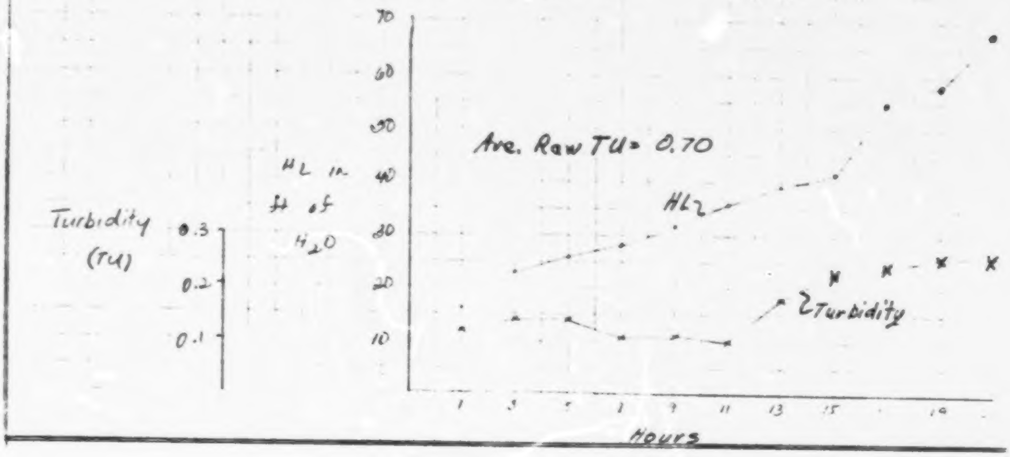
Head Loss and Effluent Turbidity Curves
ERD-2 Run-8



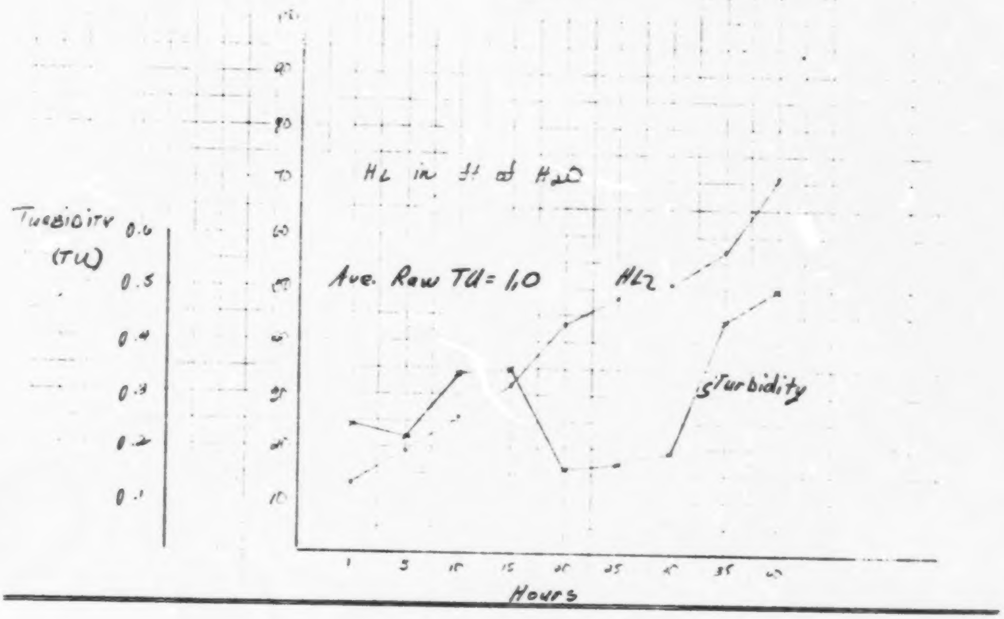
Head Loss and Effluent Turbidity Curves
ERD-2 Run-9

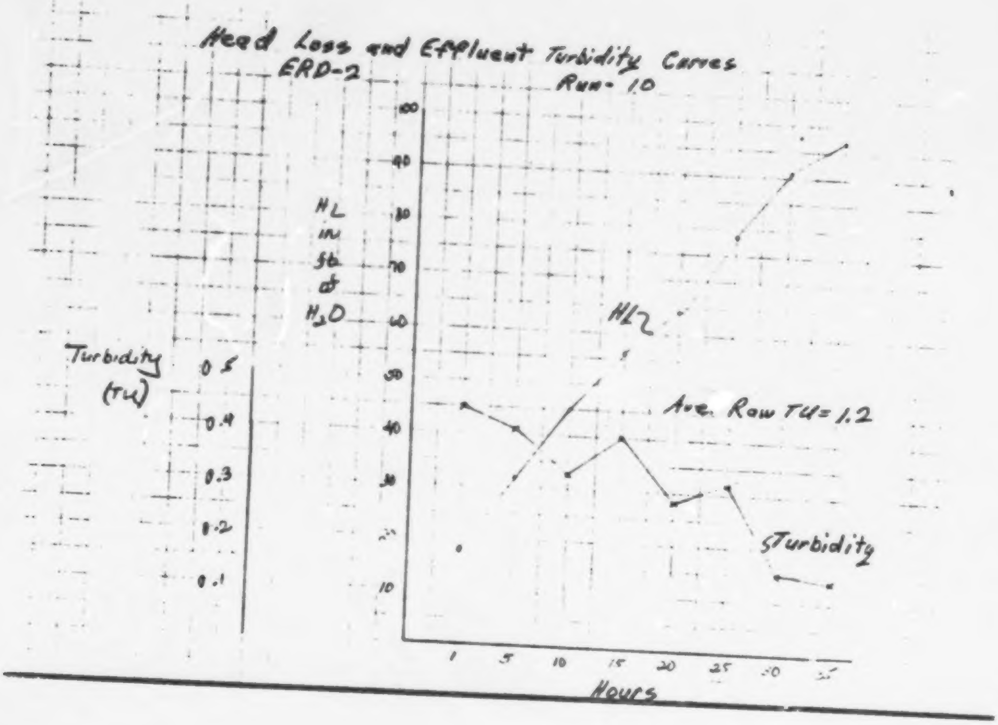


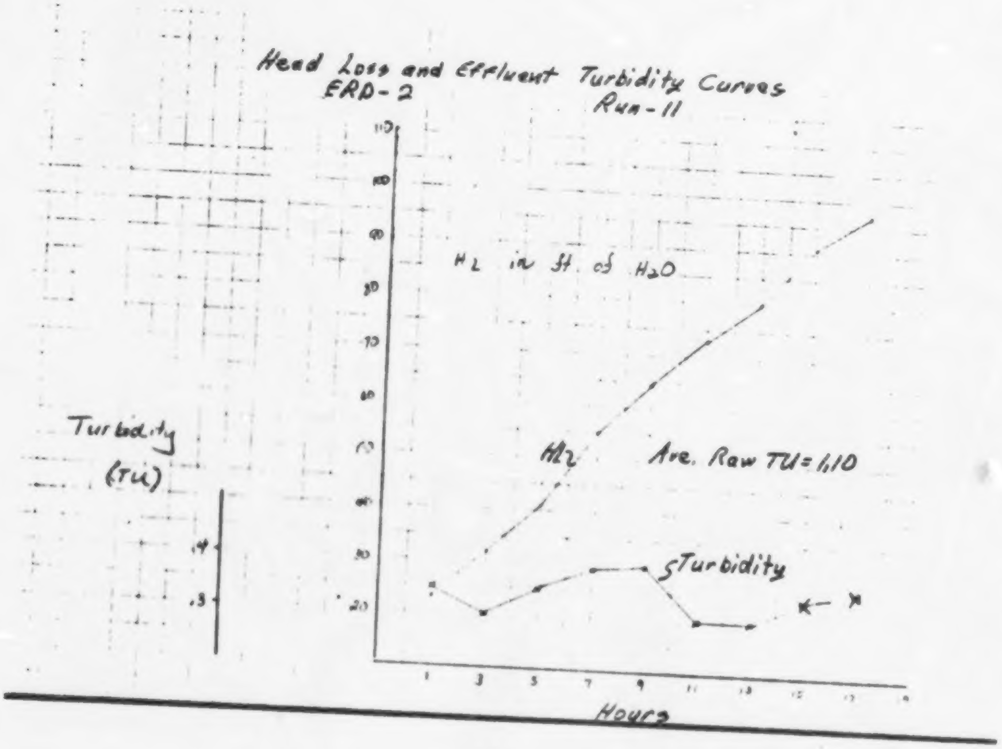
Head Loss and Effluent Turbidity Curves
ERD-2 Run-8

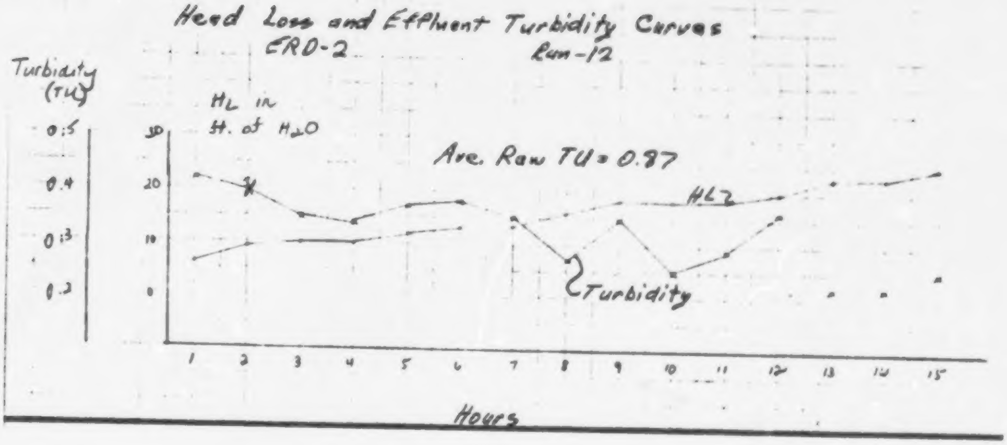


Head Loss and Effluent Turbidity Curves
ERD-2 Run-9

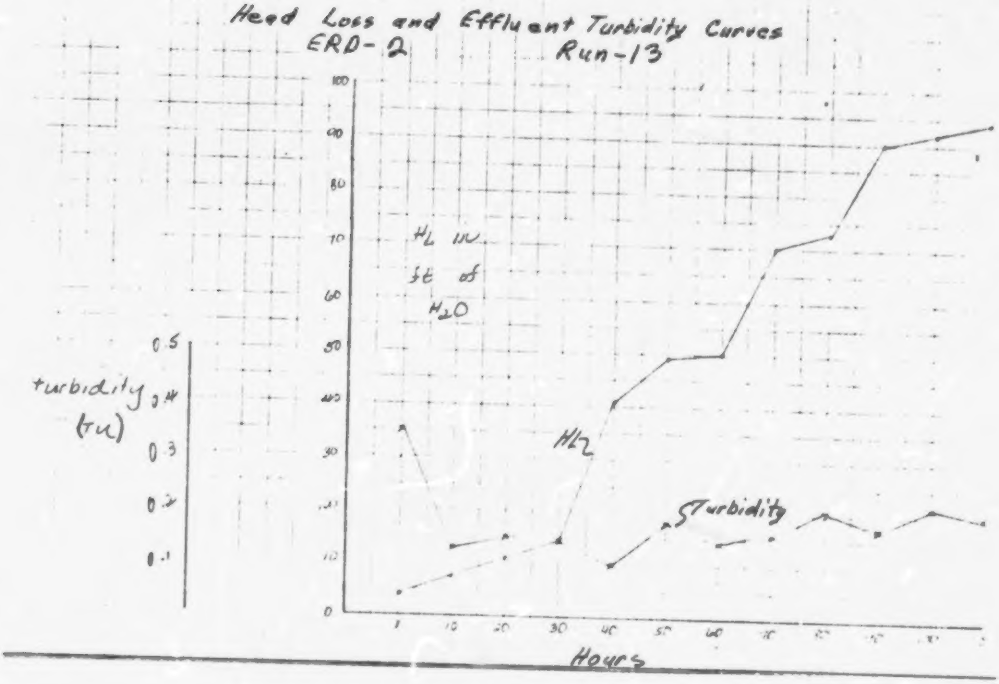



Head Loss and Effluent Turbidity Curves
ERD-2
Run-10

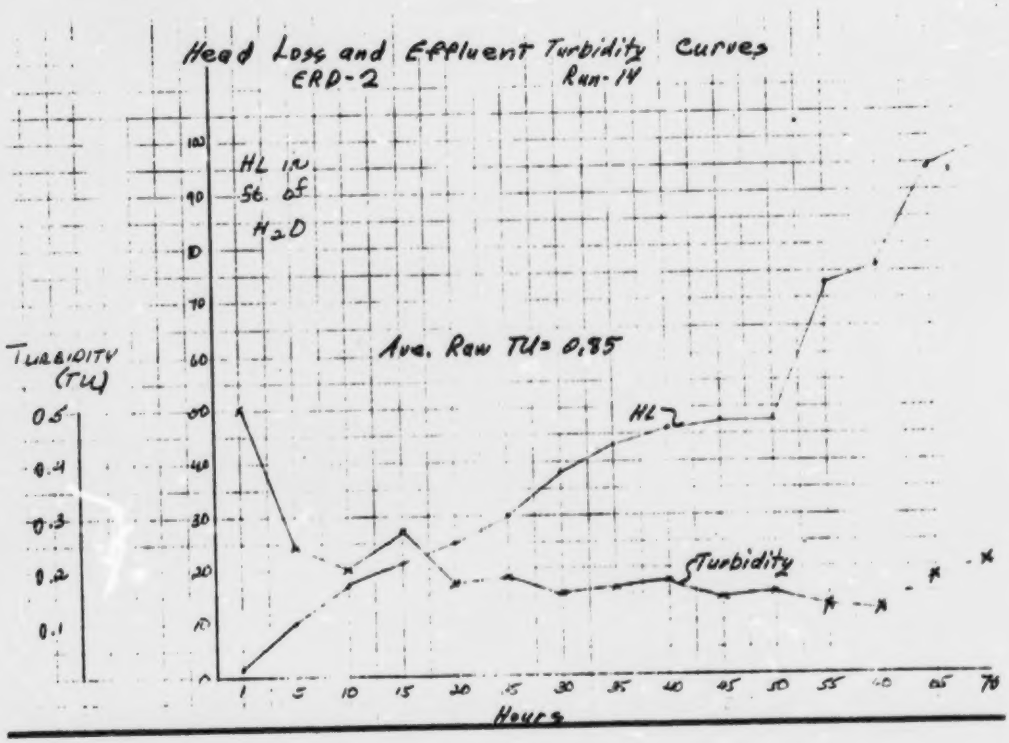

Head Loss and Effluent Turbidity Curves
ERD-2
Run-11

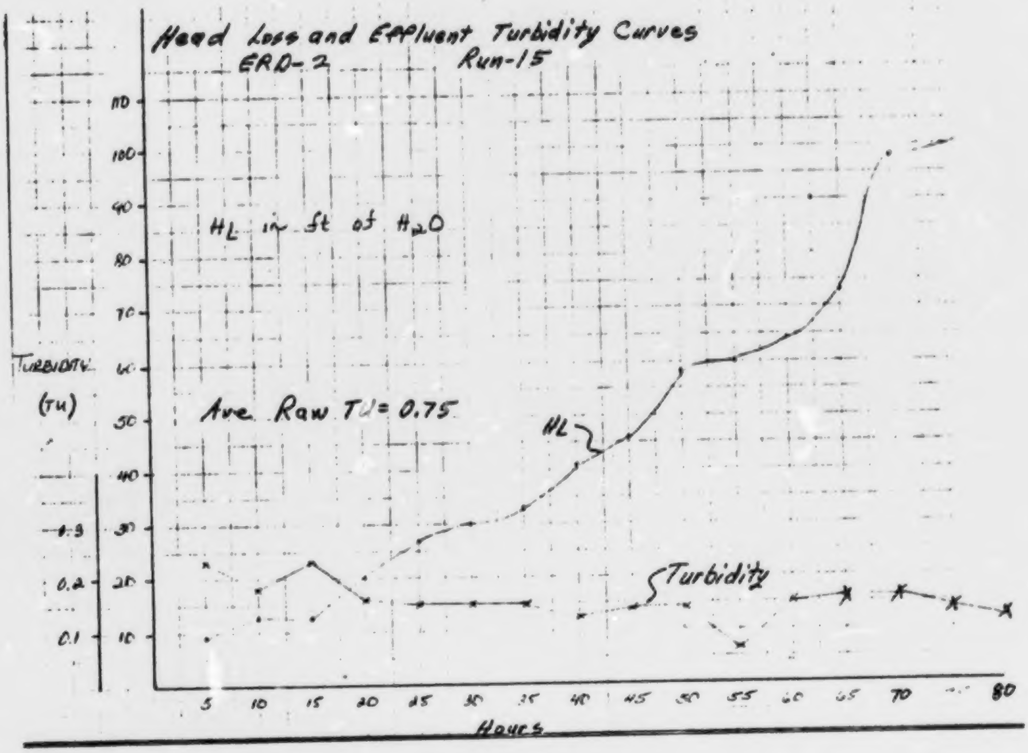


Head Loss and Effluent Turbidity Curves
ERD-2 Run-12

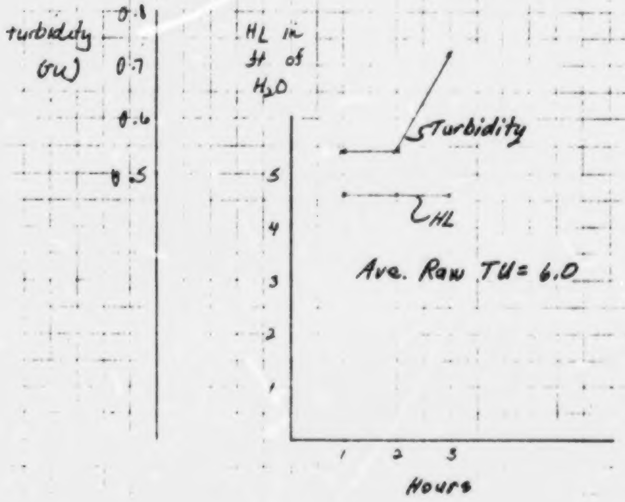


Head Loss and Effluent Turbidity Curves
ERD-2 Run-13

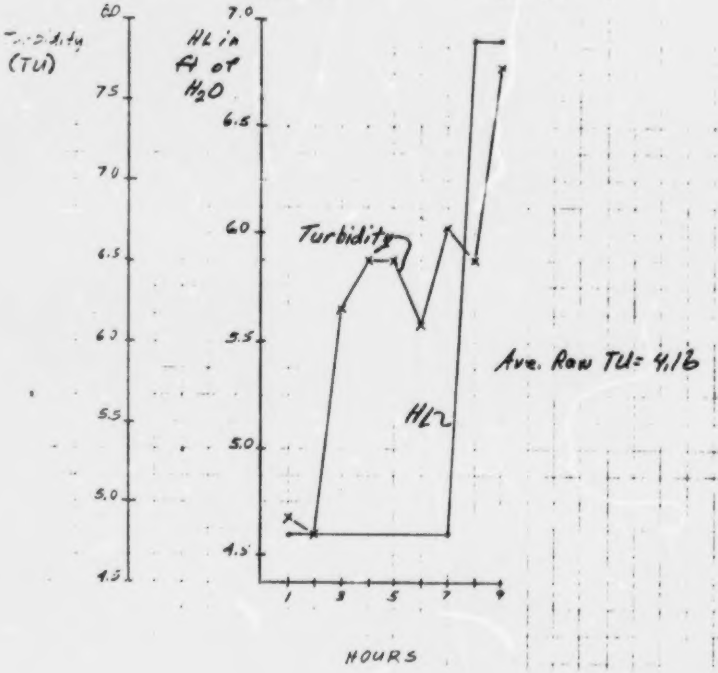

Head Loss and Effluent Turbidity Curves
ERD-2
Run-14
HL in ft. of H_2O
Turbidity (TU)
Ave. Raw TU= 0.85
HL
Turbidity
0.5
0.4
0.3
0.2
0.1
100
90
80
70
60
50
40
30
20
10
0
1
5
10
15
20
25
30
35
40
45
50
55
60
65
70
Hours

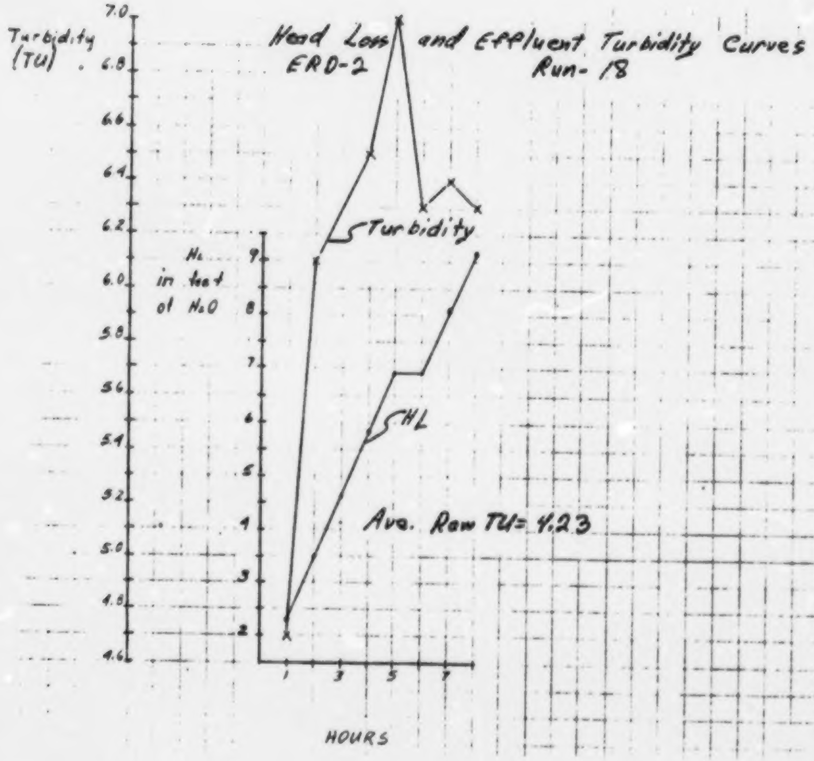

Head Loss and Effluent Turbidity Curves
ERD-2
Run-15
HL in ft of H_2O
Turbidity (TU)
Ave. Raw TU= 0.75
HL
Turbidity
0.3
0.2
0.1
110
100
90
80
70
60
50
40
30
20
10
5
10
15
20
25
30
35
40
45
50
55
60
65
70
80
Hours

Head Loss and Effluent Turbidity Curves
ERD- 2 Run- 16

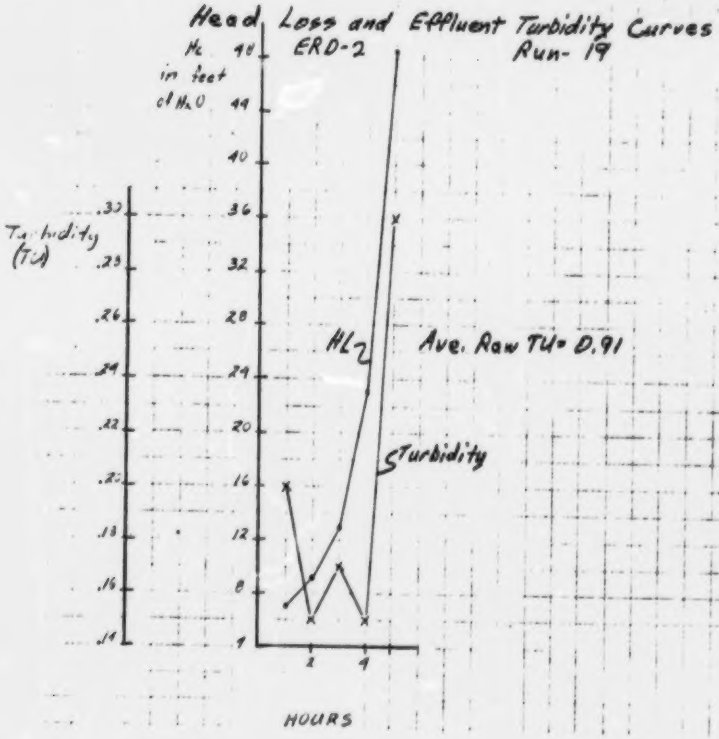


Head Loss and Effluent Turbidity Curves
ERD- 2 Run- 17

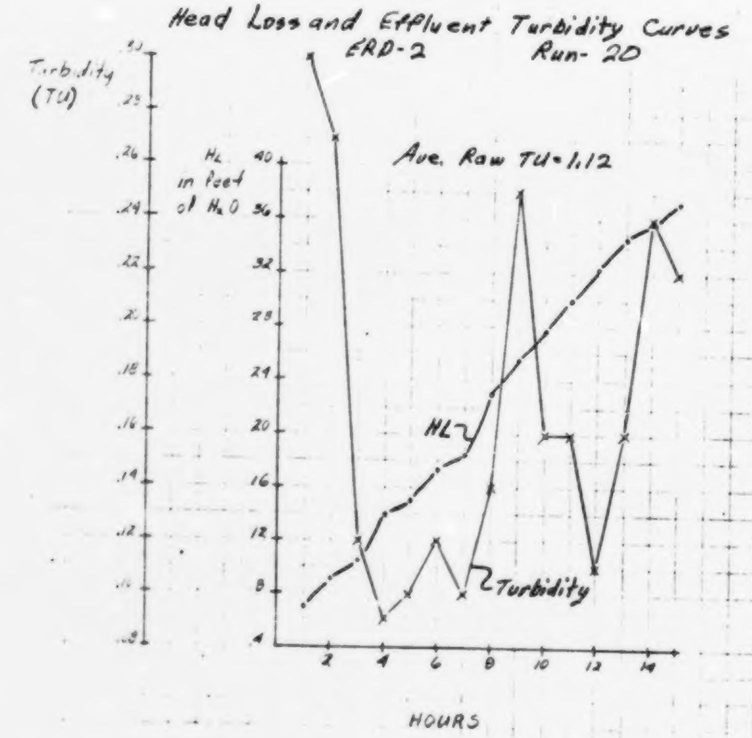




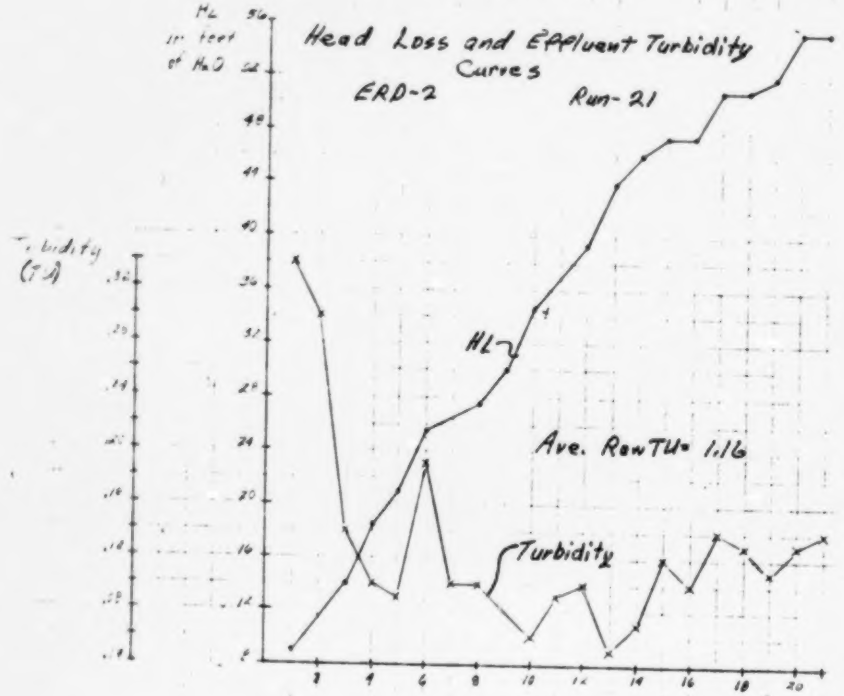
Head Loss and Effluent Turbidity Curves
ERD-2 Run- 18



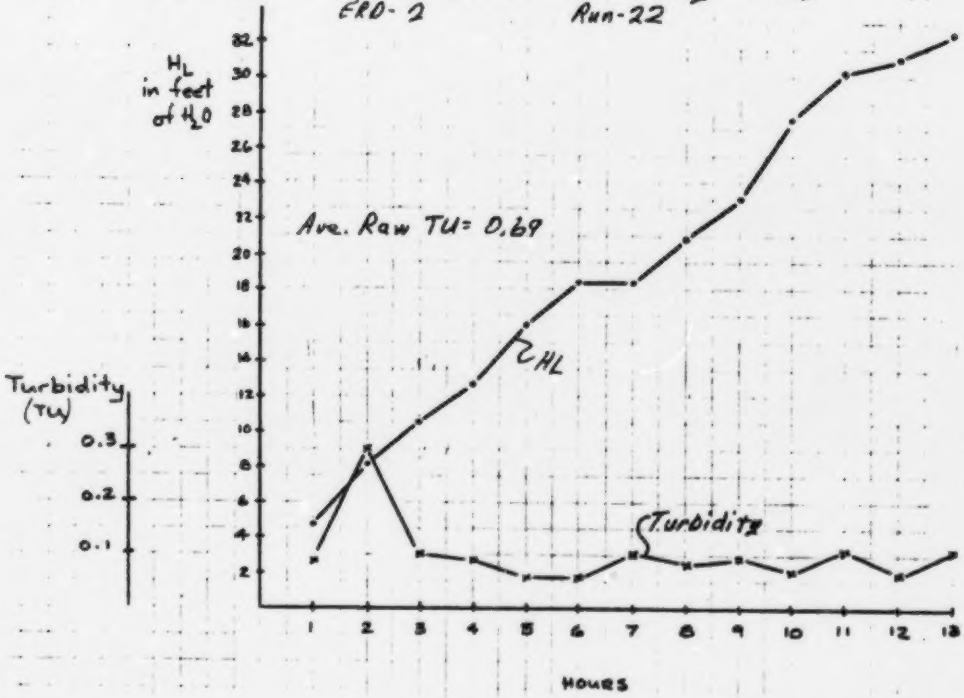
Head Loss and Effluent Turbidity Curves
ERD-2 Run- 19

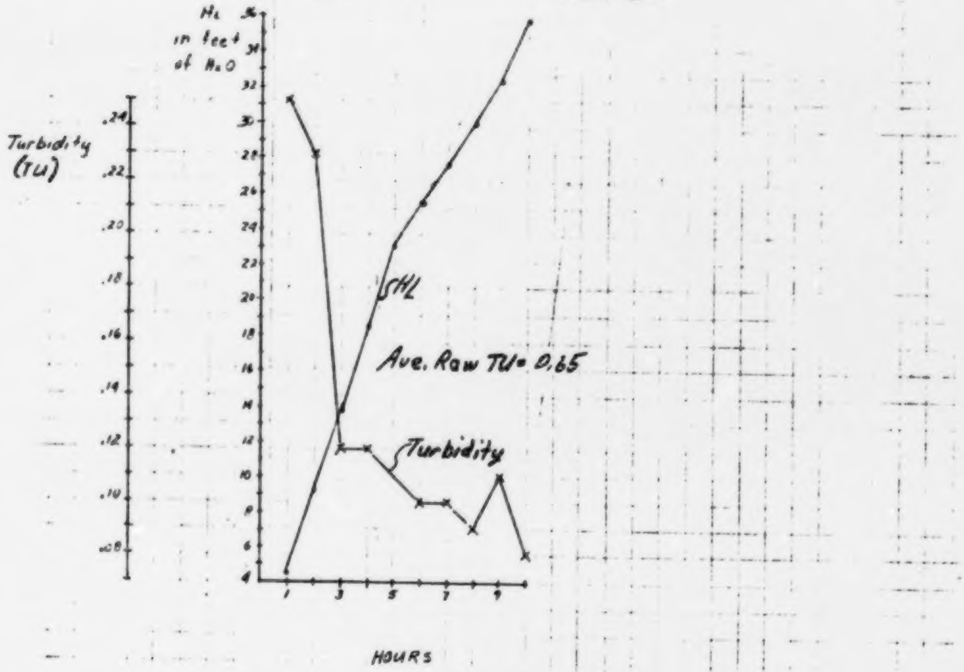


Head Loss and Effluent Turbidity Curves
ERD-2 Run- 20

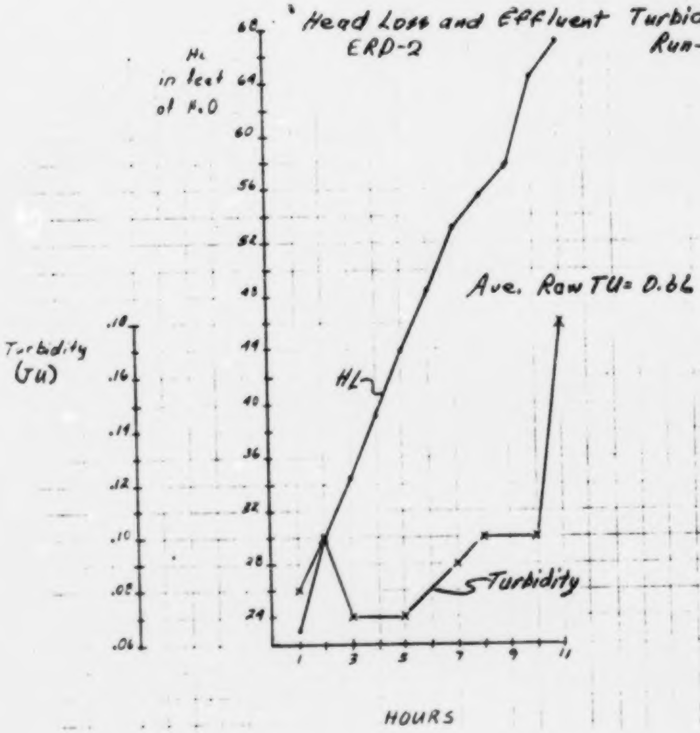


Head Loss and Effluent Turbidity Curves
ERD-2 Run- 21

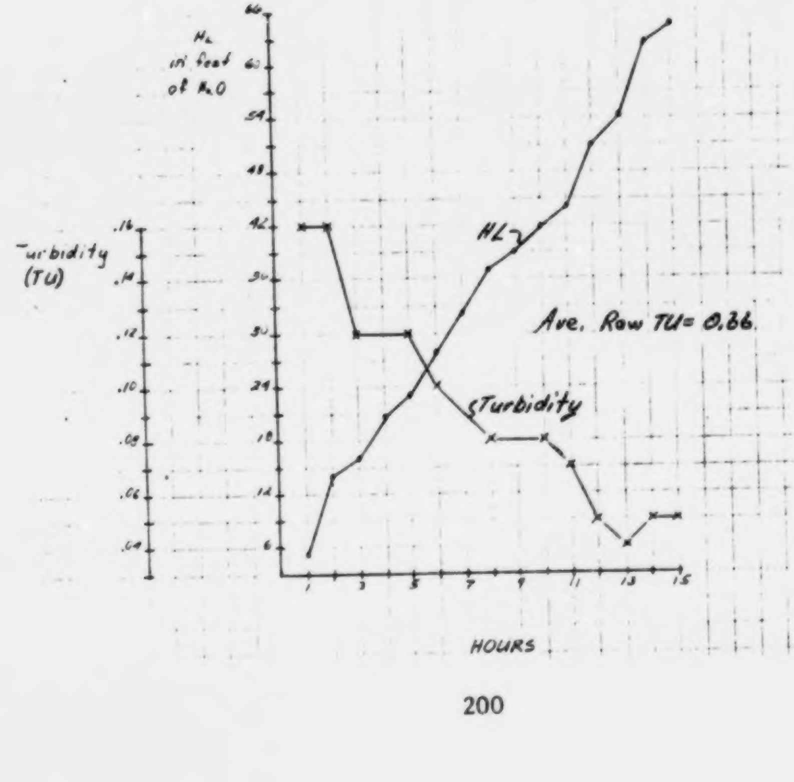

Head Loss and Effluent Turbidity Curves
ERD- 2 Run-22

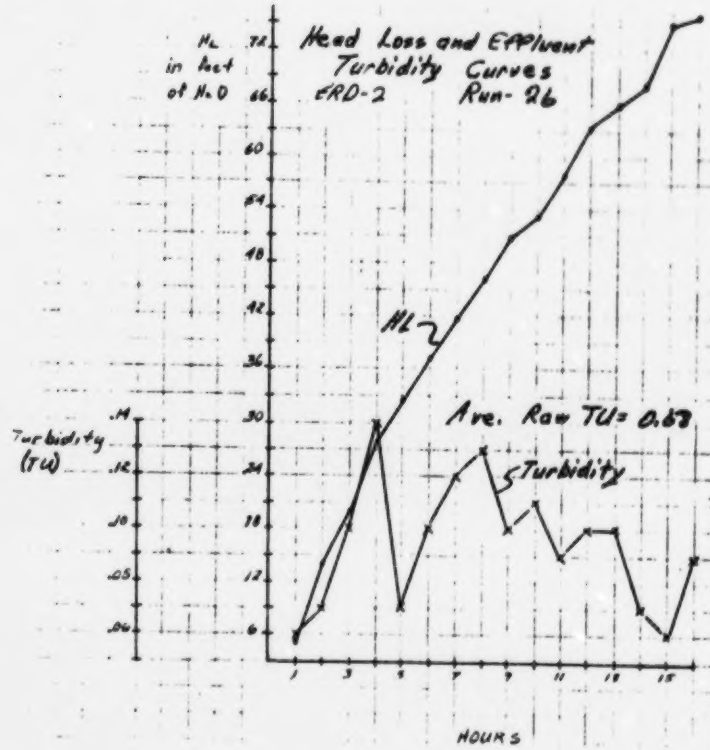

Head Loss and Effluent Turbidity Curves
ERD- 2 Run-23

Head Loss and Effluent Turbidity Curves
ERD-2 Run- 24

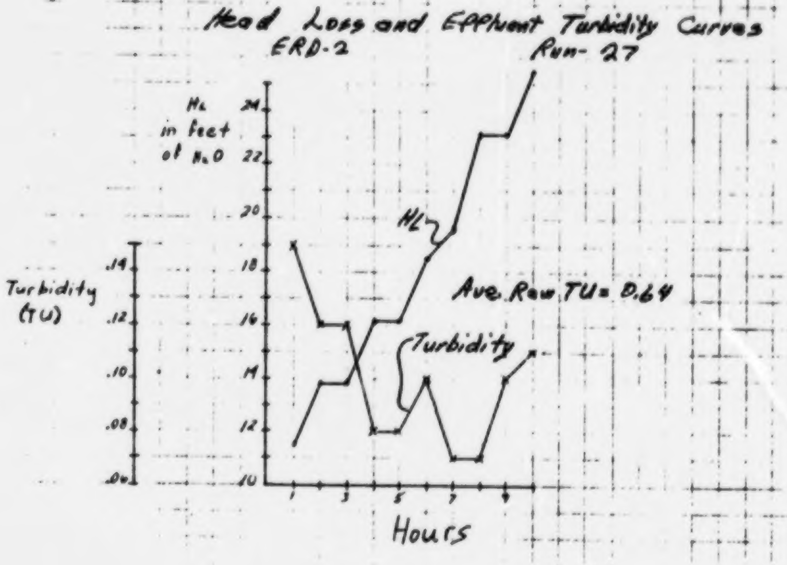


Head Loss and Effluent Turbidity Curves
ERD-2 Run- 25

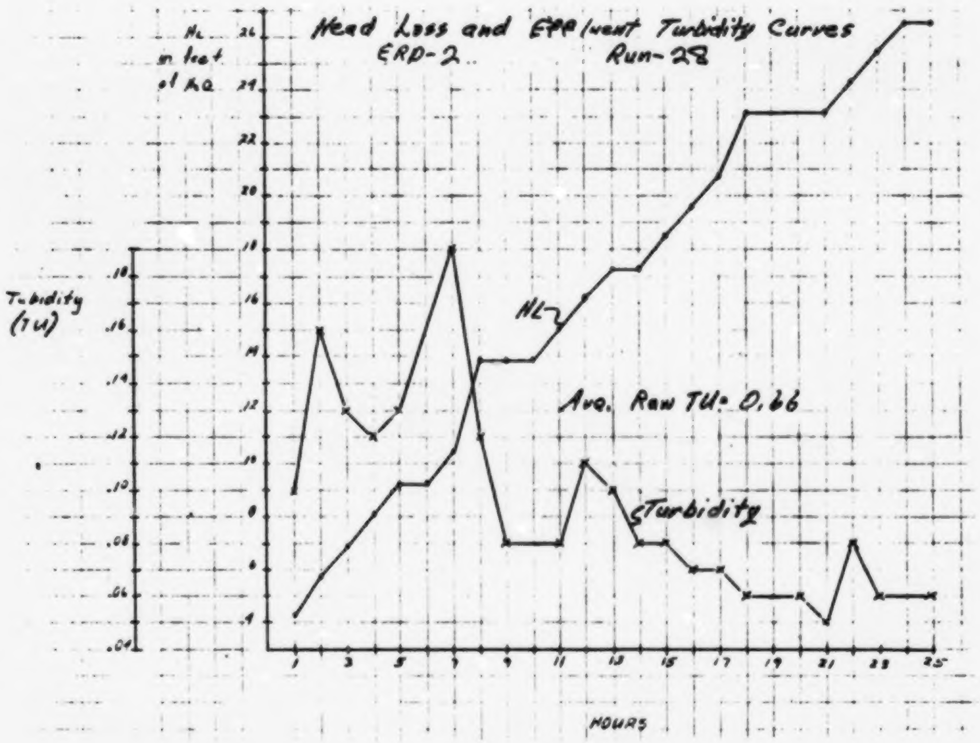


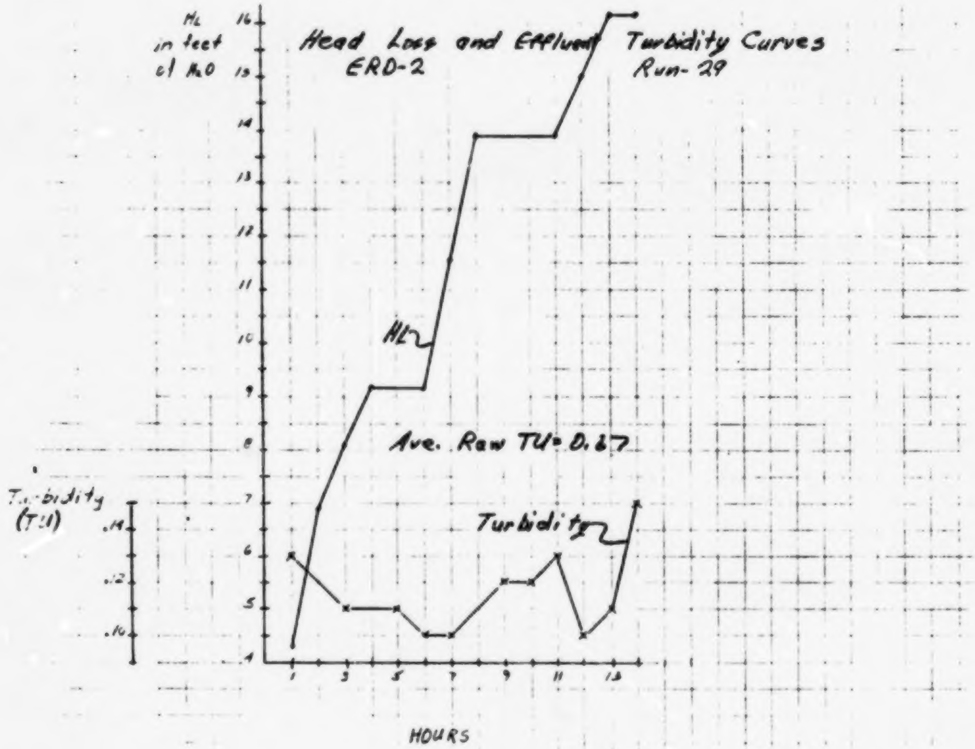


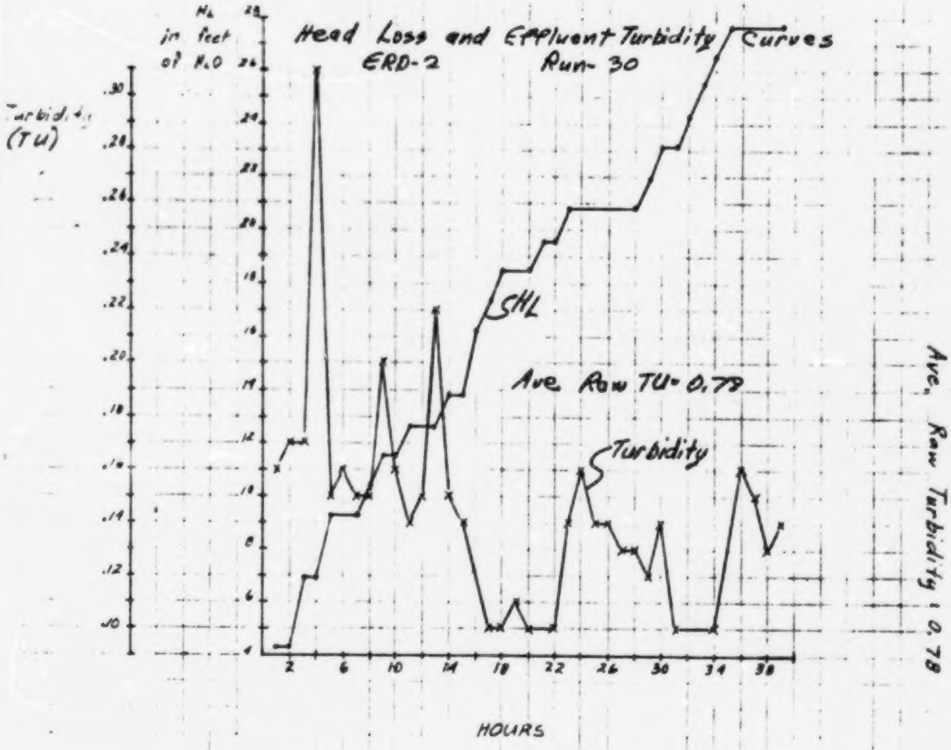
Head Loss and Effluent Turbidity Curves ERD-2 Run- 26

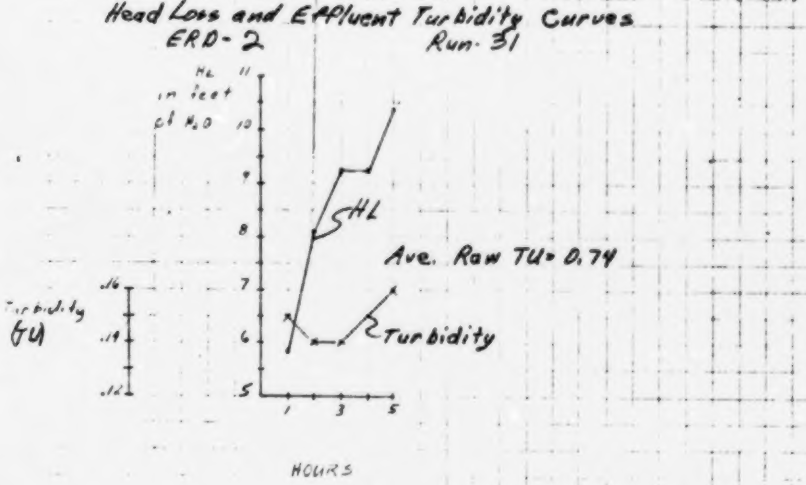


Head Loss and Effluent Turbidity Curves ERD-2 Run- 27

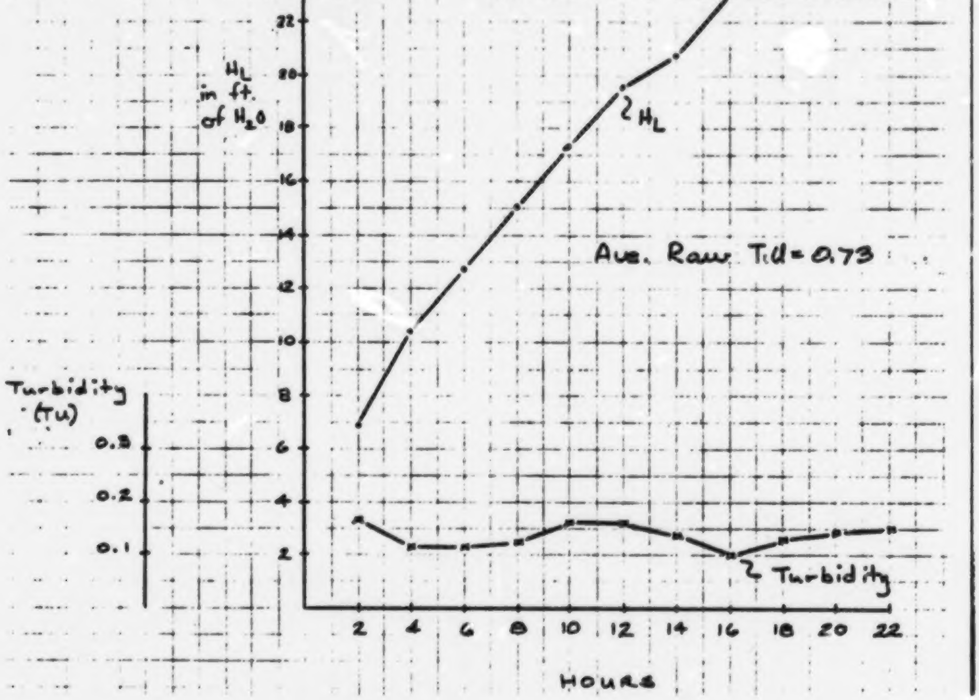

Head Loss and Effluent Turbidity Curves
ERD-2
Run-28
HL in feet of H2O
Turbidity (TU)
4
6
8
10
12
14
16
18
20
22
24
26
.04
.06
.08
.10
.12
.14
.16
.18
1
3
5
7
9
11
13
15
17
19
21
23
25
HOURS
HL
Ave. Raw TU= 0.66
Turbidity


Head Loss and Effluent Turbidity Curves
ERD-2
Run-29
HL in feet of H2O
Turbidity (TU)
4
5
6
7
8
9
10
11
12
13
14
15
16
.10
.12
.14
1
3
5
7
9
11
13
HOURS
HL
Ave. Raw TU= 0.67
Turbidity

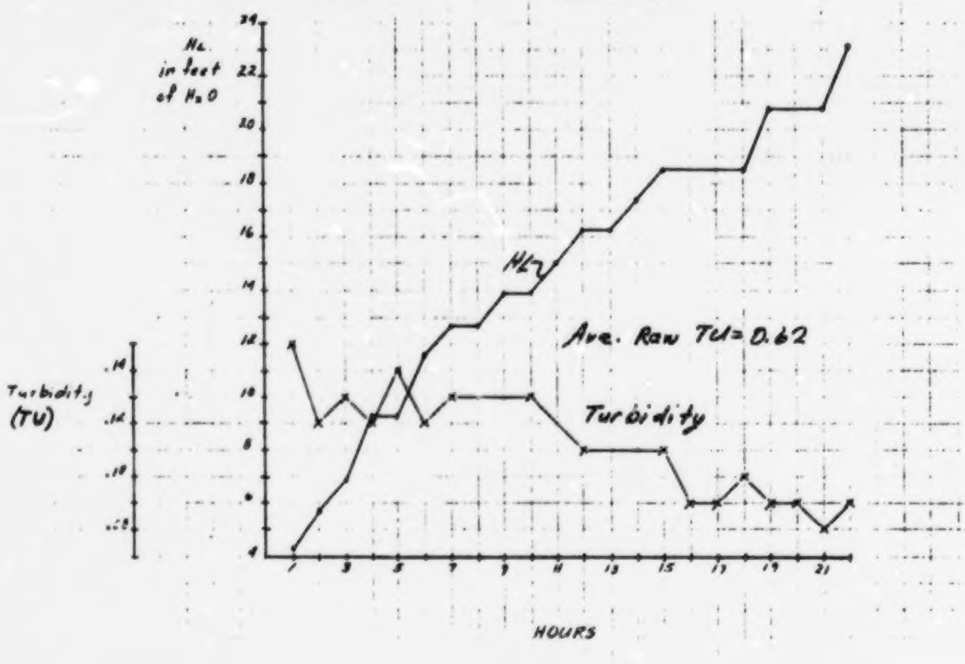

Head Loss and Effluent Turbidity Curves
ERD-2 Run-30


Head Loss and Effluent Turbidity Curves
ERD-2 Run-31

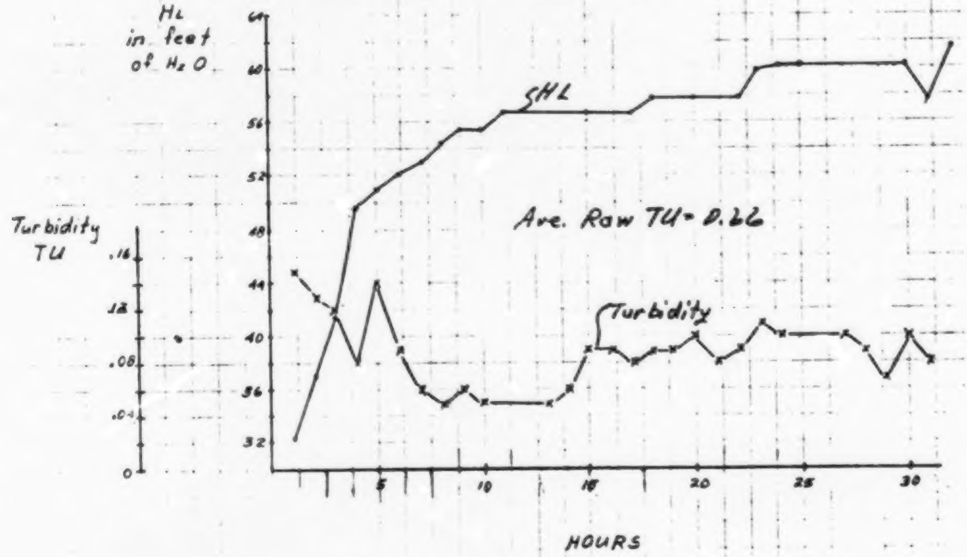
Head Loss and Effluent Turbidity Curves
ERD-2 Run-32



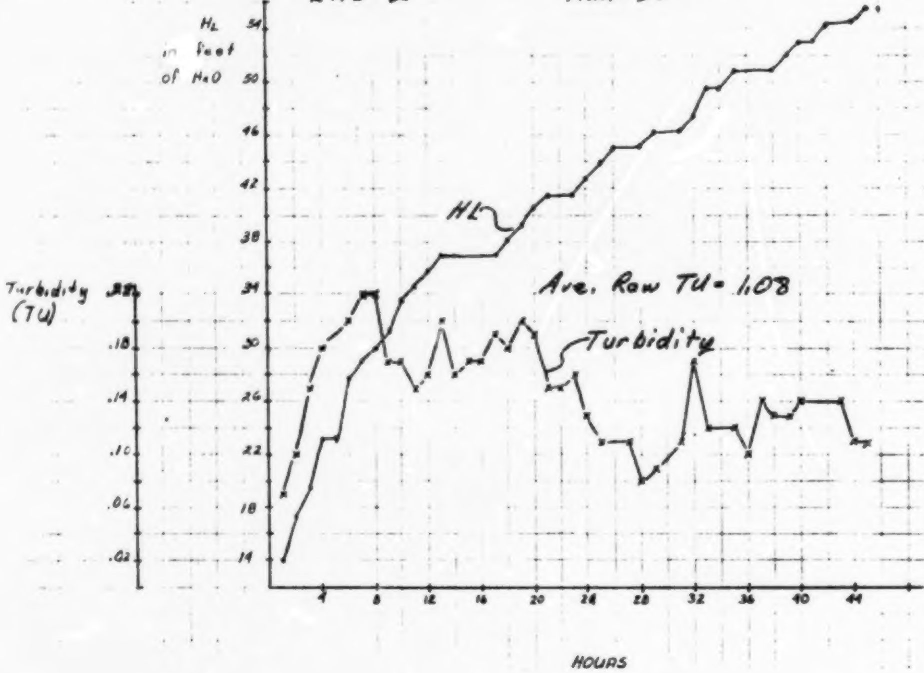
Head Loss and Effluent Turbidity Curves
ERD-2 Run-33

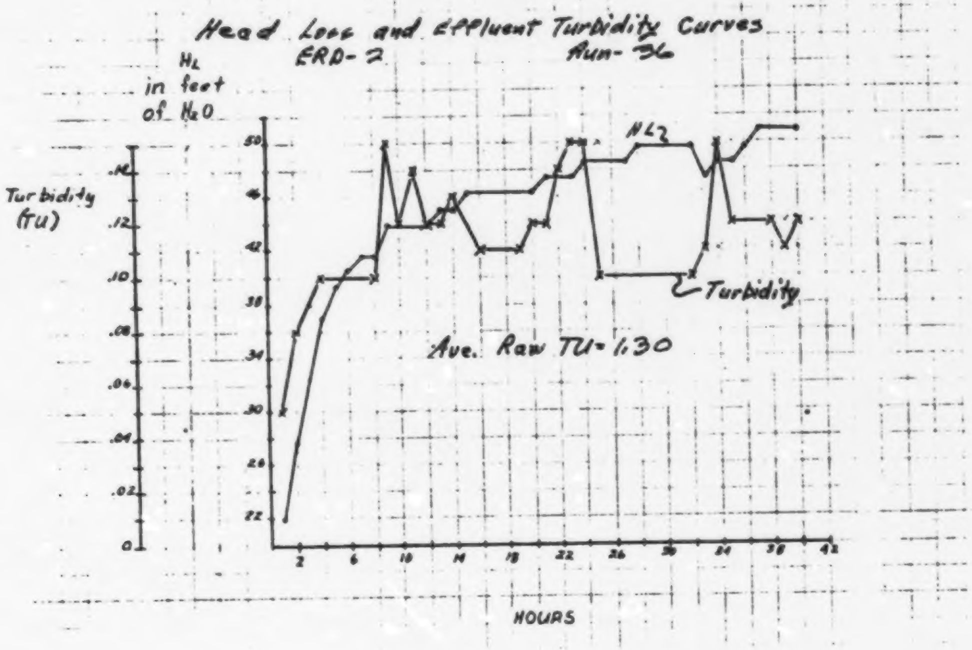


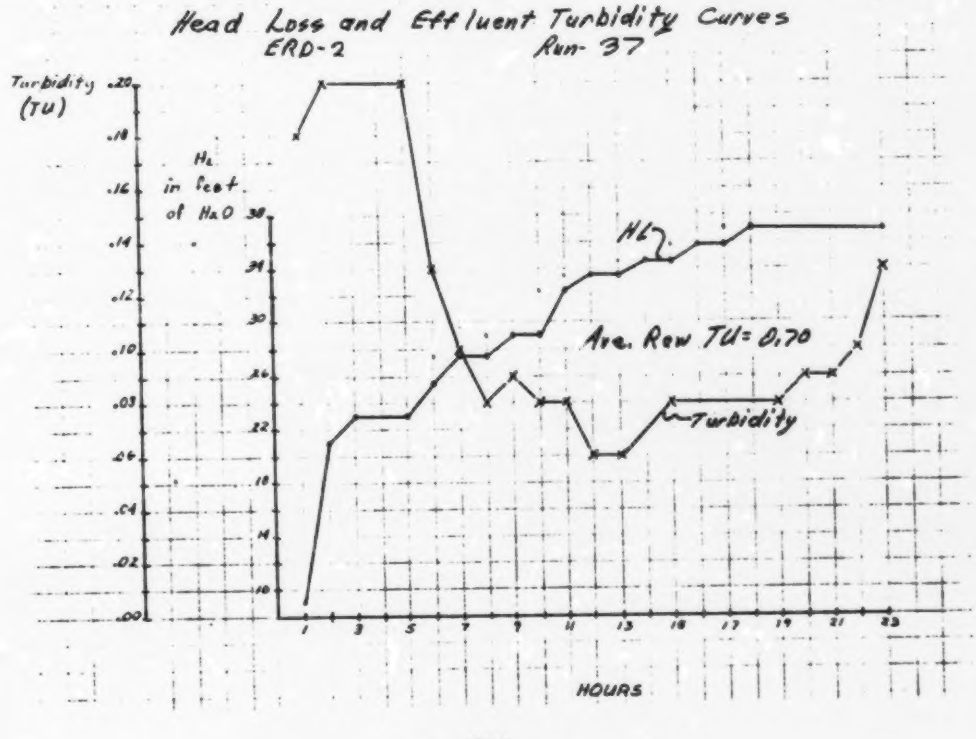
Head Loss and Effluent Turbidity Curves
ERD-2 Run-34



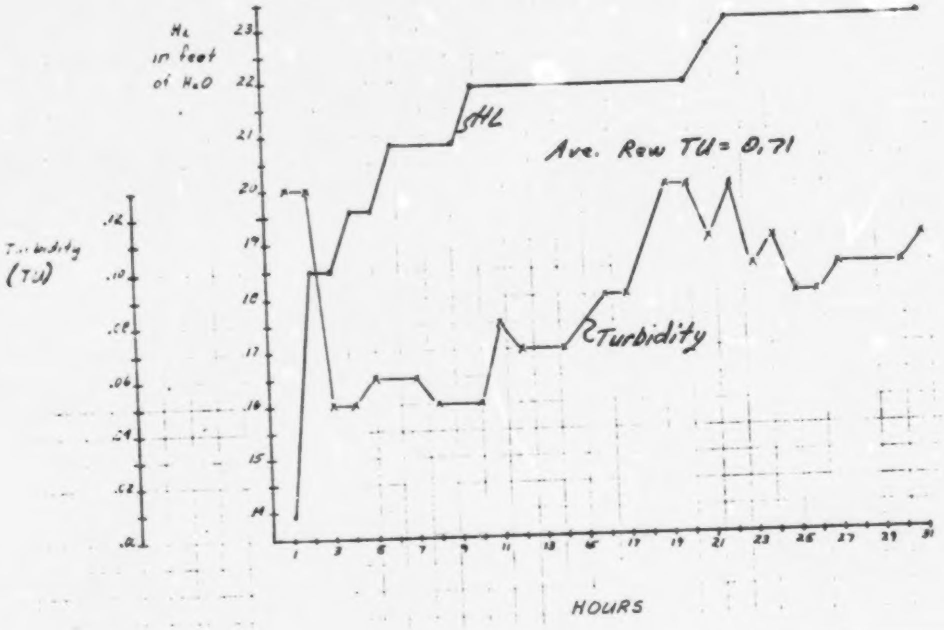
Head Loss and Effluent Turbidity Curves
ERD-2 Run-35



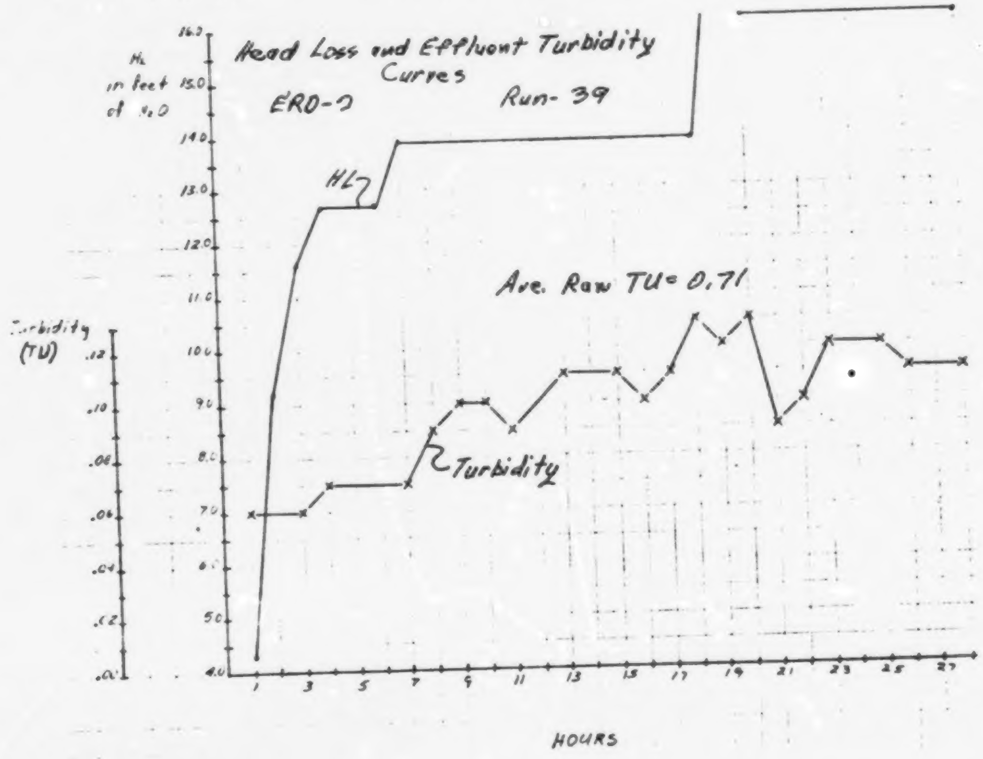

Head Loss and Effluent Turbidity Curves
ERD-2
Run-36
HL in feet of H2O
Turbidity (TU)
0
.02
.04
.06
.08
.10
.12
.14
22
26
30
34
38
42
46
50
HL
Turbidity
Ave. Raw TU= 1.30
2
6
10
14
18
22
26
30
34
38
42
HOURS


Head Loss and Effluent Turbidity Curves
ERD-2
Run-37
Turbidity (TU)
HL in feet of H2O
.00
.02
.04
.06
.08
.10
.12
.14
.16
.18
.20
10
14
18
22
26
30
34
38
HL
Turbidity
Ave. Raw TU= 0.70
1
3
5
7
9
11
13
15
17
19
21
23
HOURS

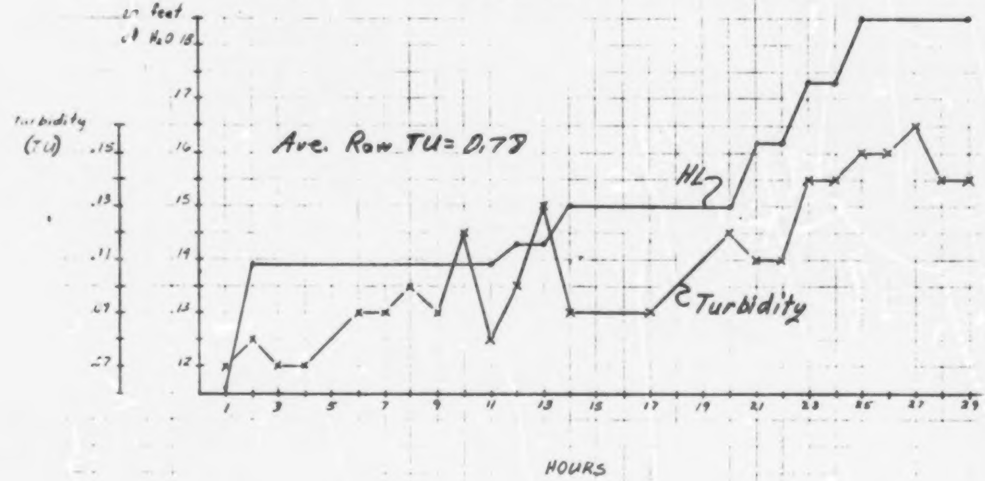
Head Loss and Effluent Turbidity Curves
ERD-2 Run-38



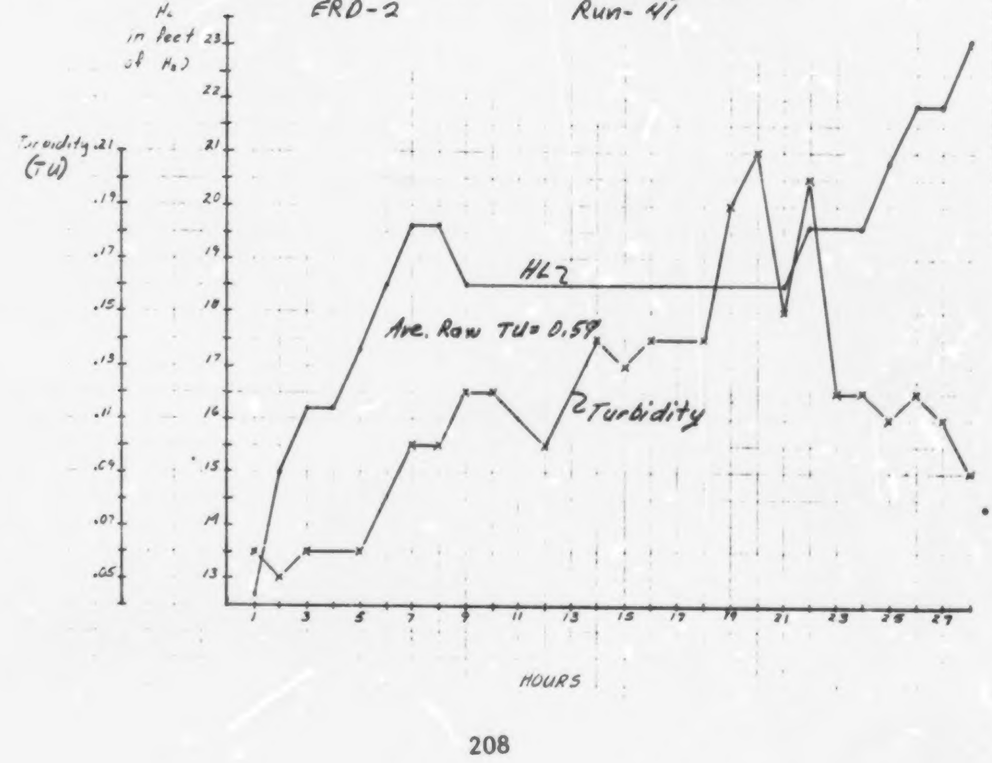
Head Loss and Effluent Turbidity Curves
ERD-2 Run-39

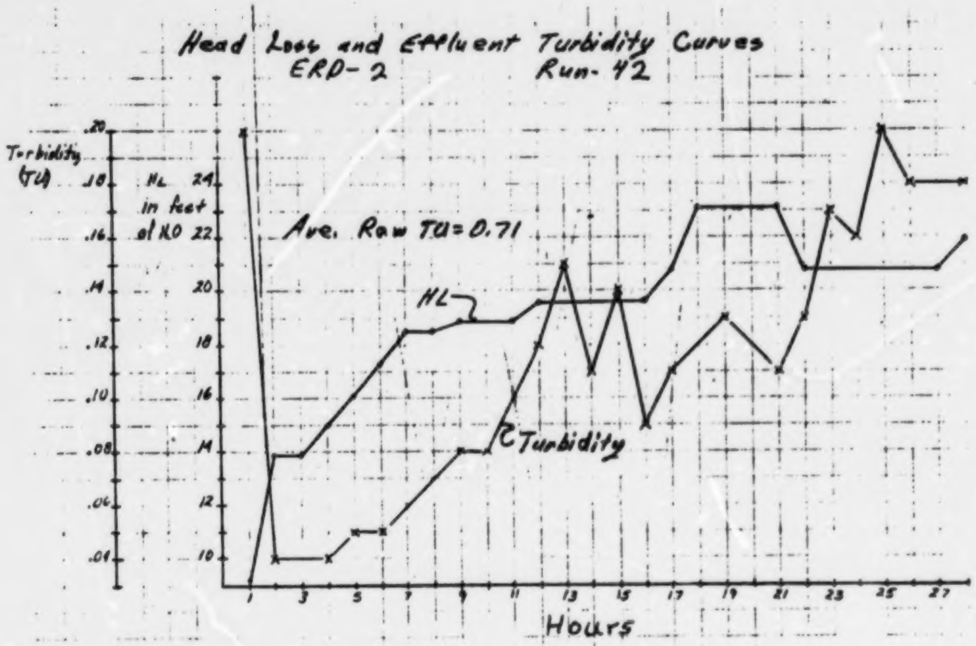


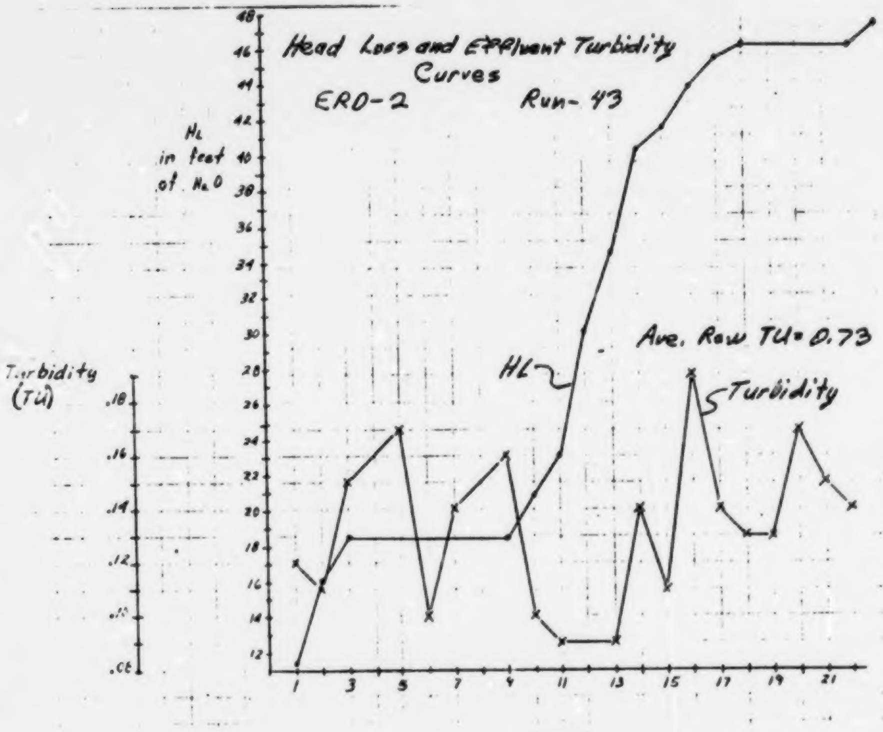
Head Loss and Effluent Turbidity Curves
ERD-2 Run-40



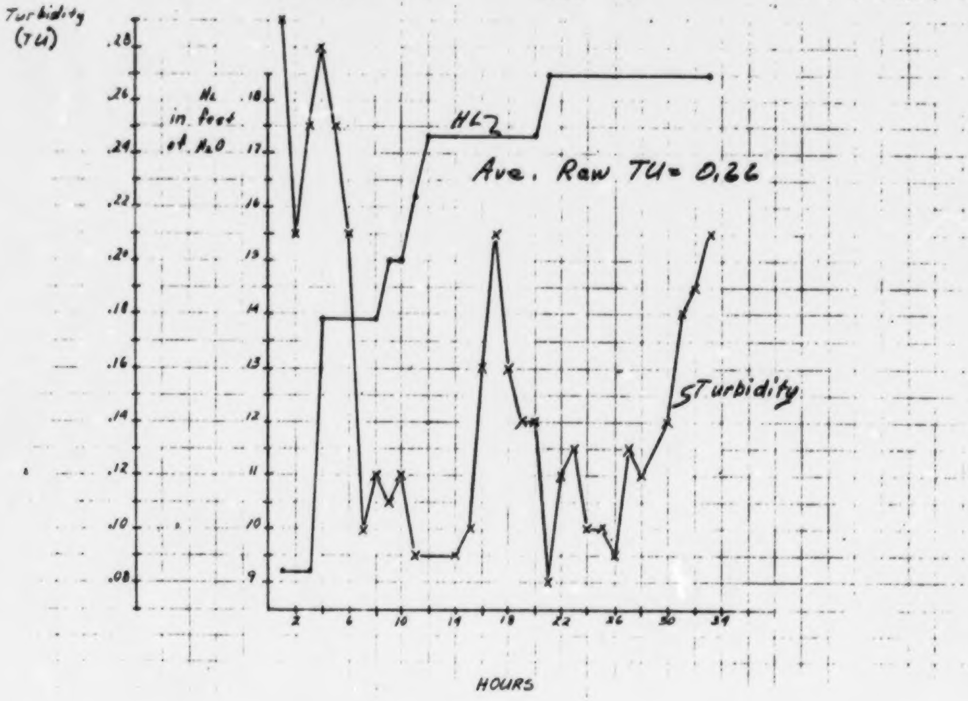
Head Loss and Effluent Turbidity Curves
ERD-2 Run-41



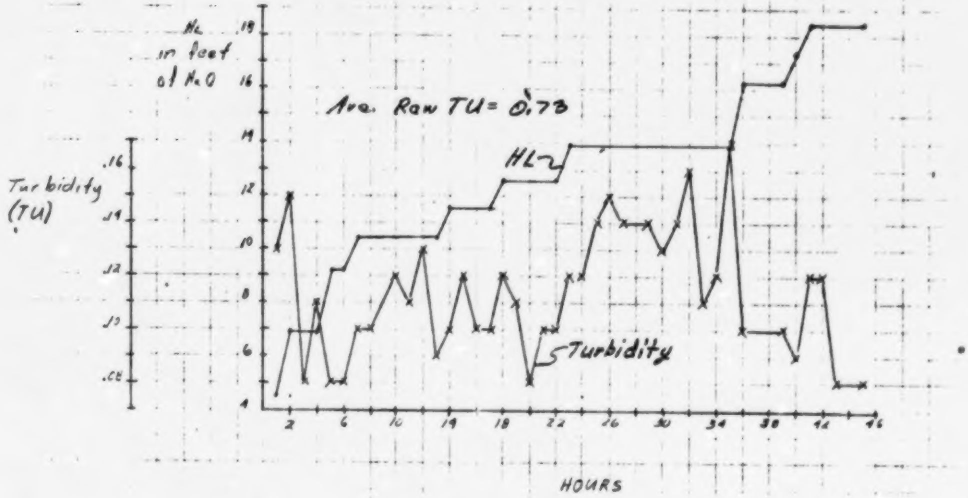

Head Loss and Effluent Turbidity Curves
ERD-2
Run-42
Turbidity (TU)
HL in feet of H2O
Ave. Raw TU=0.71
HL
Turbidity
Hours
.20
.18
.16
.14
.12
.10
.08
.06
.04
24
22
20
18
16
14
12
10
1
3
5
7
9
11
13
15
17
19
21
23
25
27


Head Loss and Effluent Turbidity Curves
ERD-2
Run-43
HL in feet of H2O
Turbidity (TU)
Ave. Raw TU=0.73
HL
Turbidity
HOURS
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
16
14
12
.18
.16
.14
.12
.10
.08
1
3
5
7
9
11
13
15
17
19
21

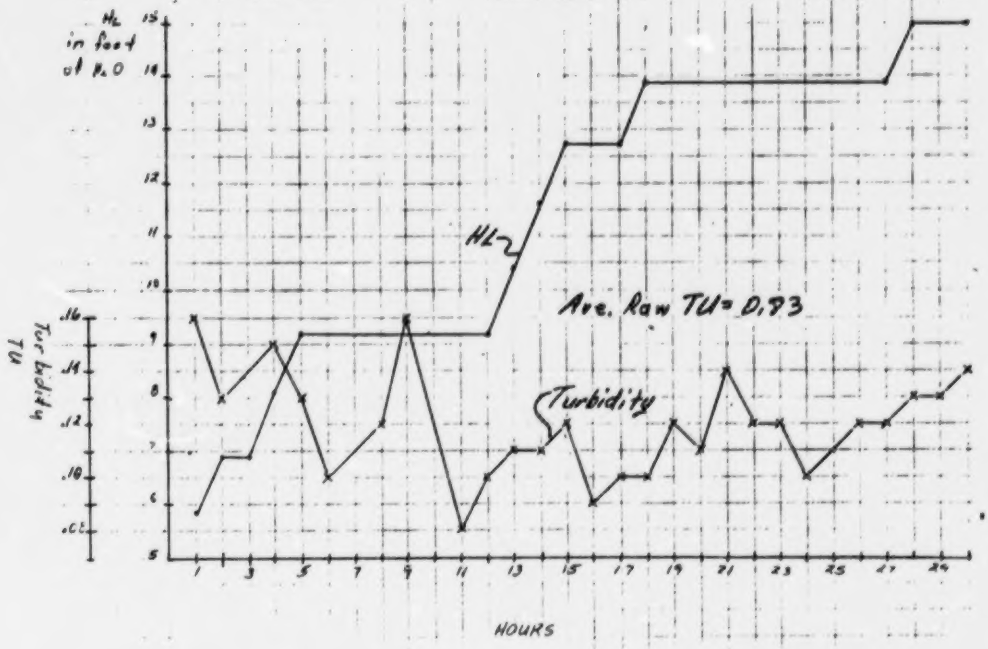
Head Loss and Effluent Turbidity Curves
ERD-2 Run-44



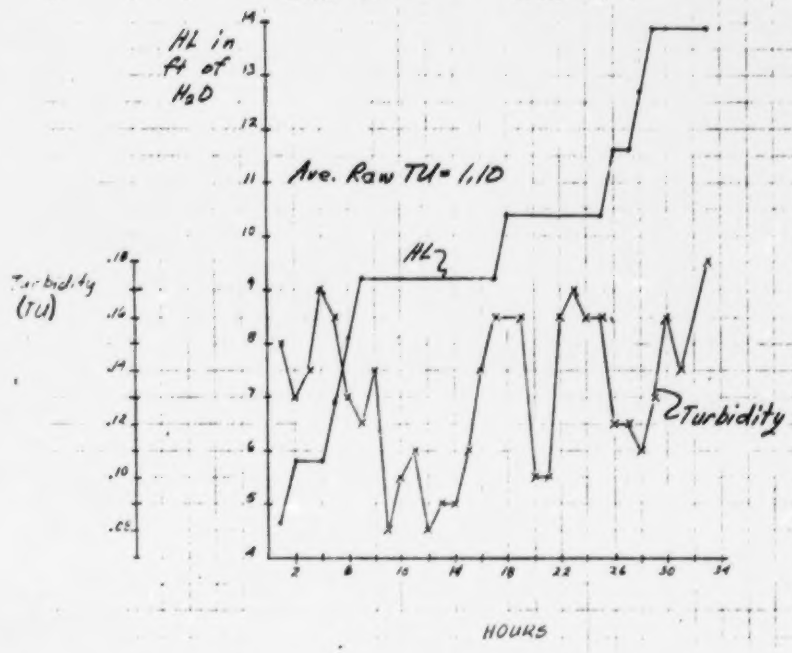
Head Loss and Effluent Turbidity Curves
ERD-2 Run-45

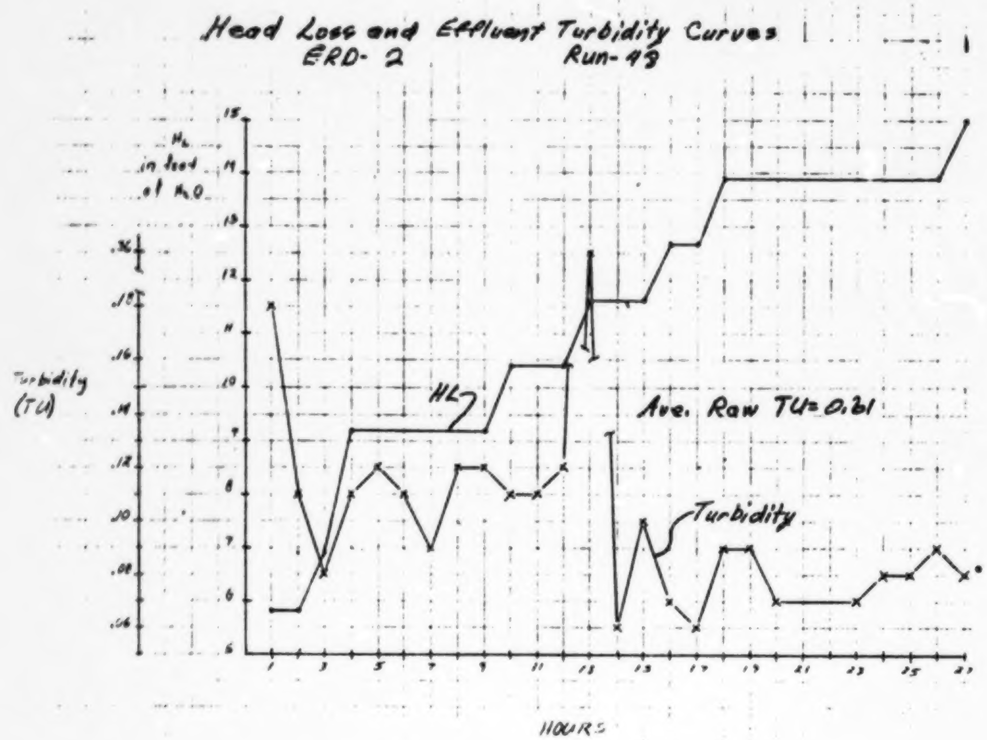


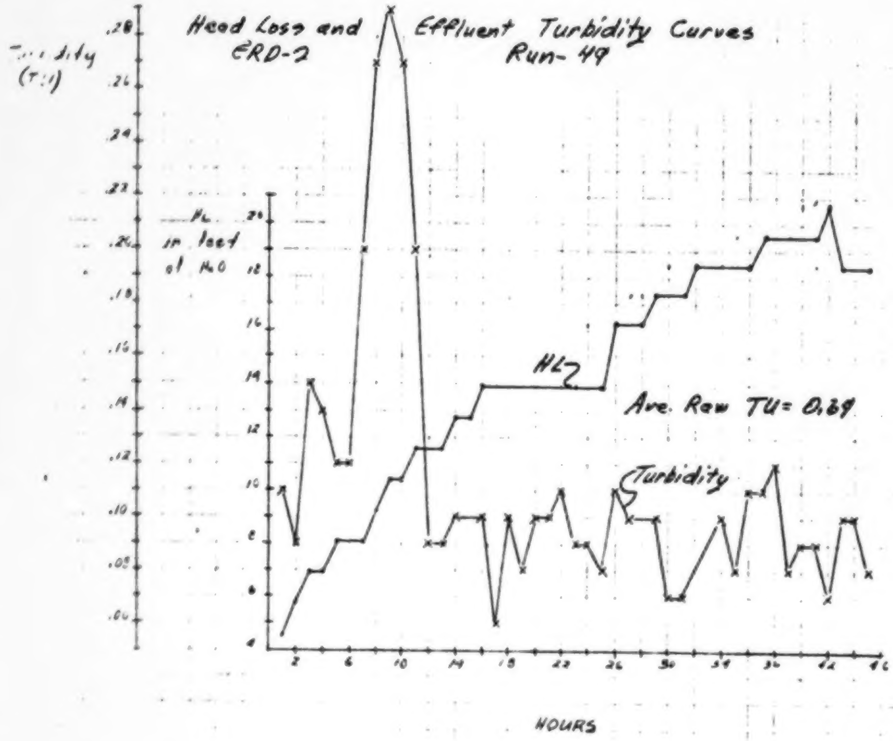
Head Loss and Effluent Turbidity Curves
ERD-2 Run-46

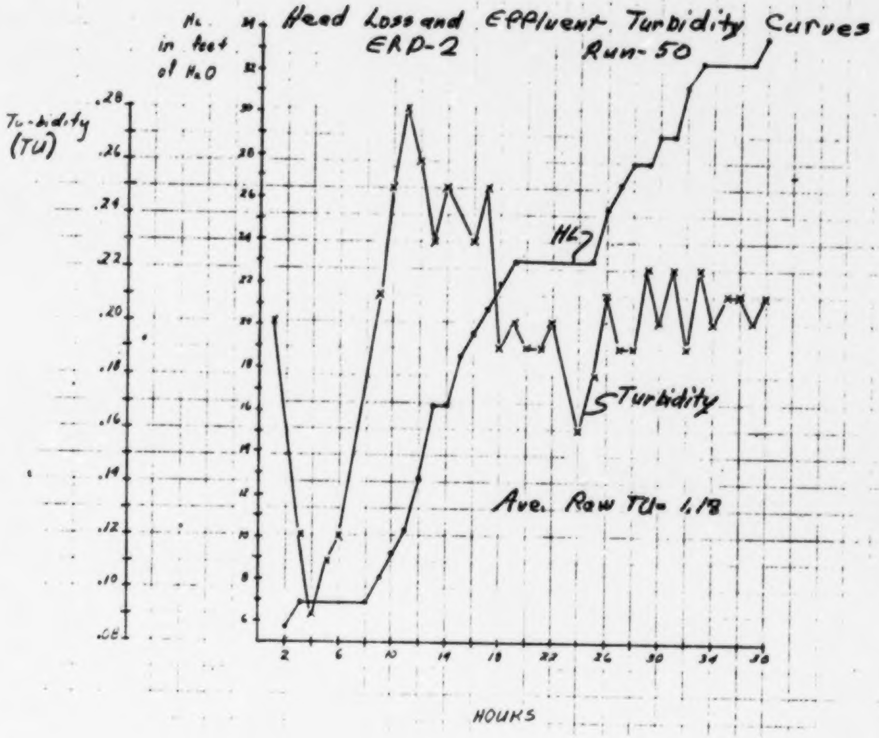


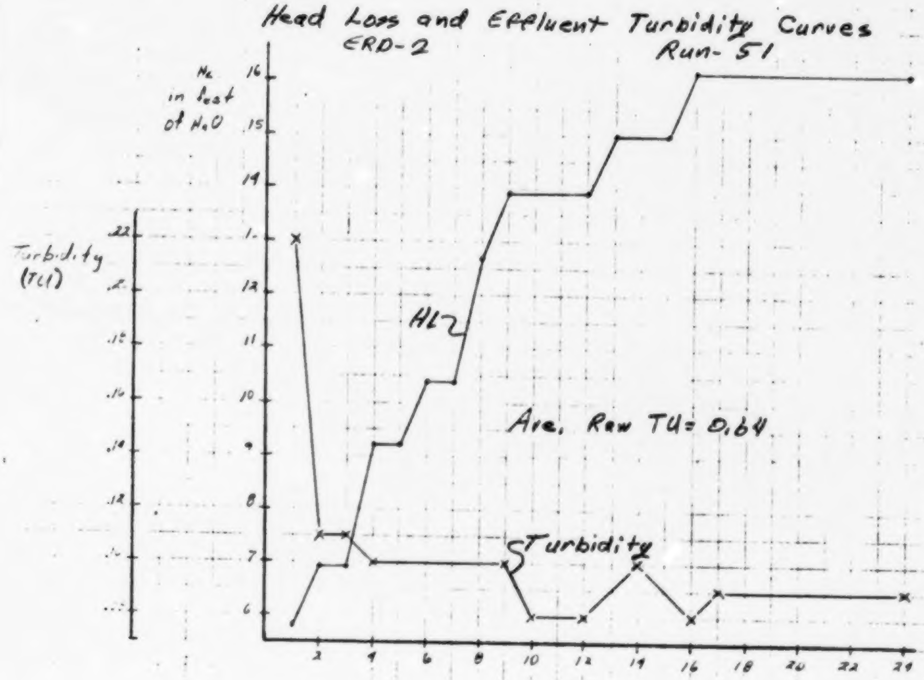
Head Loss and Effluent Turbidity Curves
ERD-2 Run-47

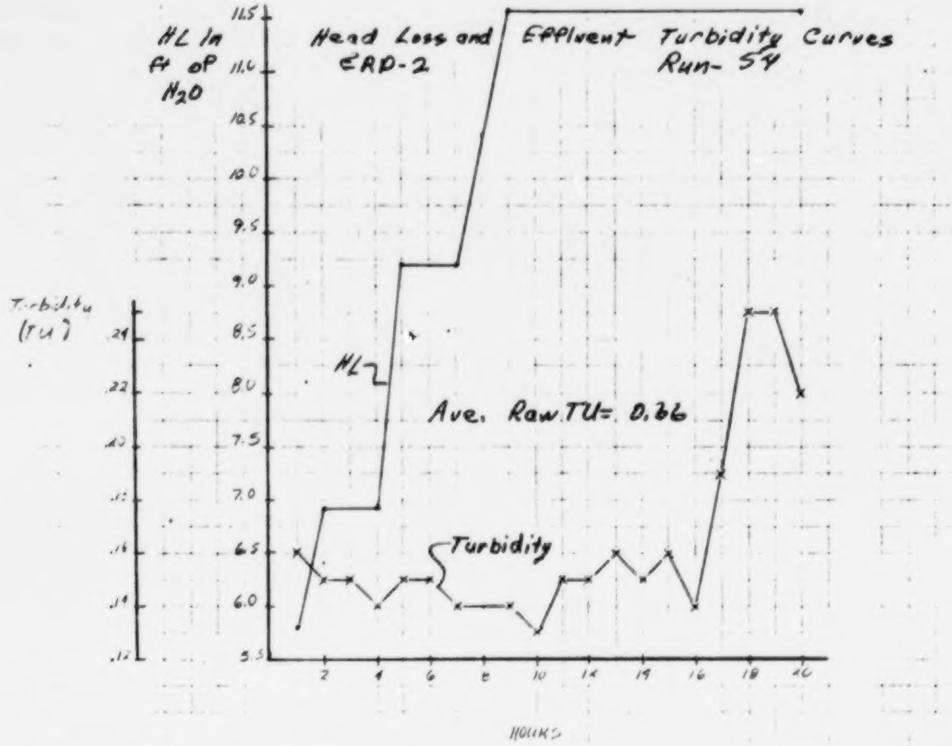



Head Loss and Effluent Turbidity Curves
ERD-2
Run-48
HL in feet of H2O
Turbidity (TU)
HL
Ave. Raw TU= 0.31
Turbidity
HOURS
.20
.18
.16
.14
.12
.10
.08
.06
15
14
13
12
11
10
9
8
7
6
5
1
3
5
7
9
11
13
15
17
19
21
23
25
27

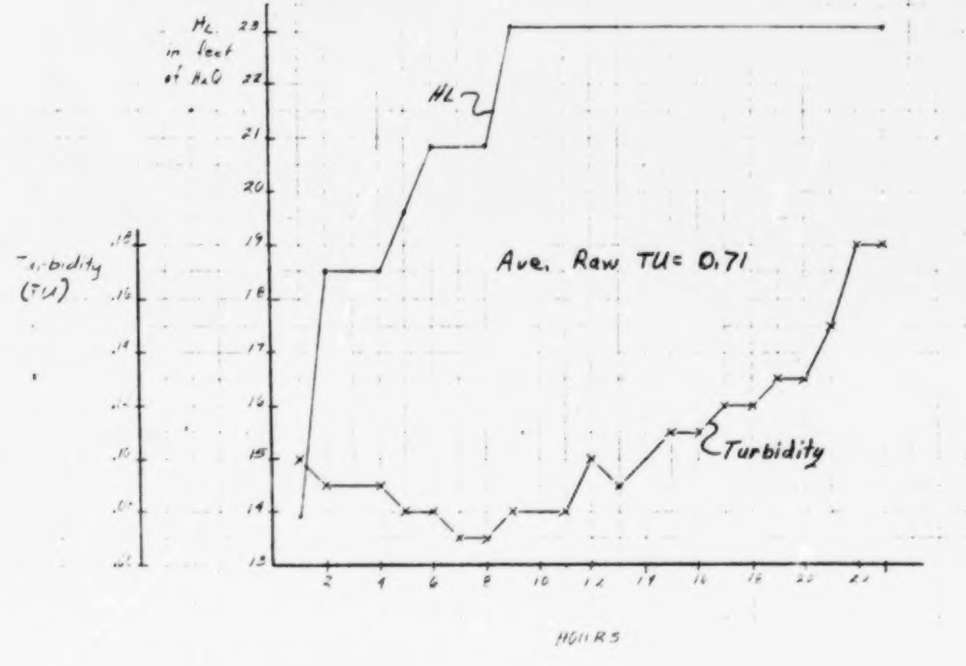

Head Loss and Effluent Turbidity Curves
ERD-2
Run-49
Turbidity (TU)
HL in feet of H2O
HL
Ave. Raw TU= 0.39
Turbidity
HOURS
.28
.26
.24
.22
.20
.18
.16
.14
.12
.10
.08
.06
20
18
16
14
12
10
8
6
4
2
6
10
14
18
22
26
30
34
38
42
46

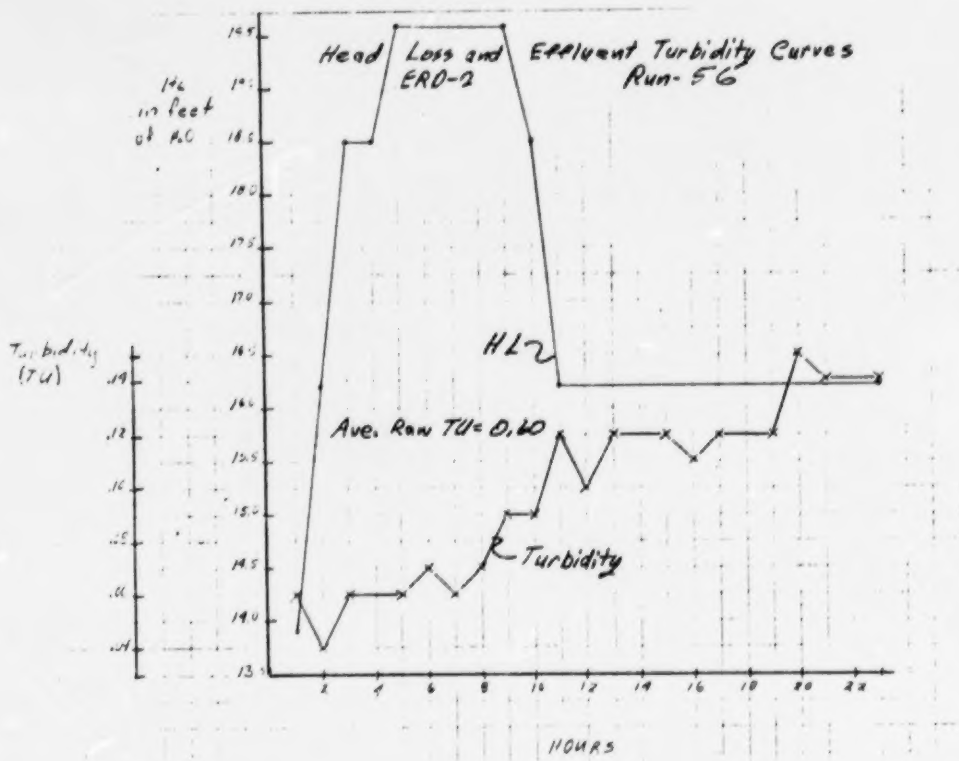

Head Loss and Effluent Turbidity Curves
ERD-2
Run-50
HL in feet of H2O
Turbidity (TU)
.28
.26
.24
.22
.20
.18
.16
.14
.12
.10
.08
HL
Turbidity
Ave. Raw TU= 1.18
2
6
10
14
18
22
26
30
34
38
HOURS

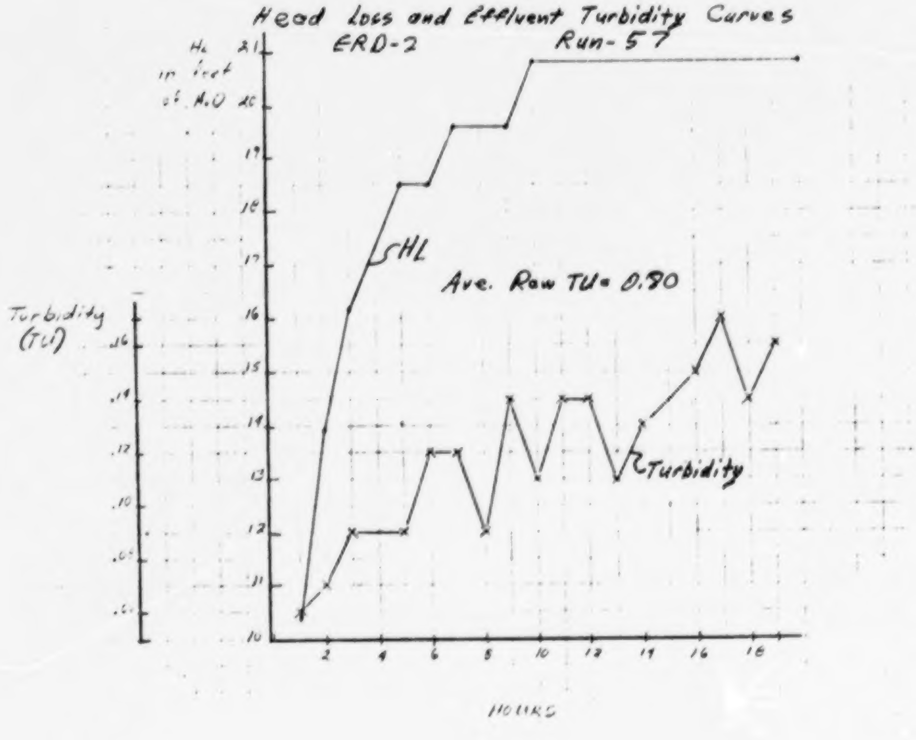

Head Loss and Effluent Turbidity Curves
ERD-2
Run-51
HL in feet of H2O
Turbidity (TU)
16
15
14
13
12
11
10
9
8
7
6
.22
HL
Ave. Raw TU= 0.64
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
HOURS

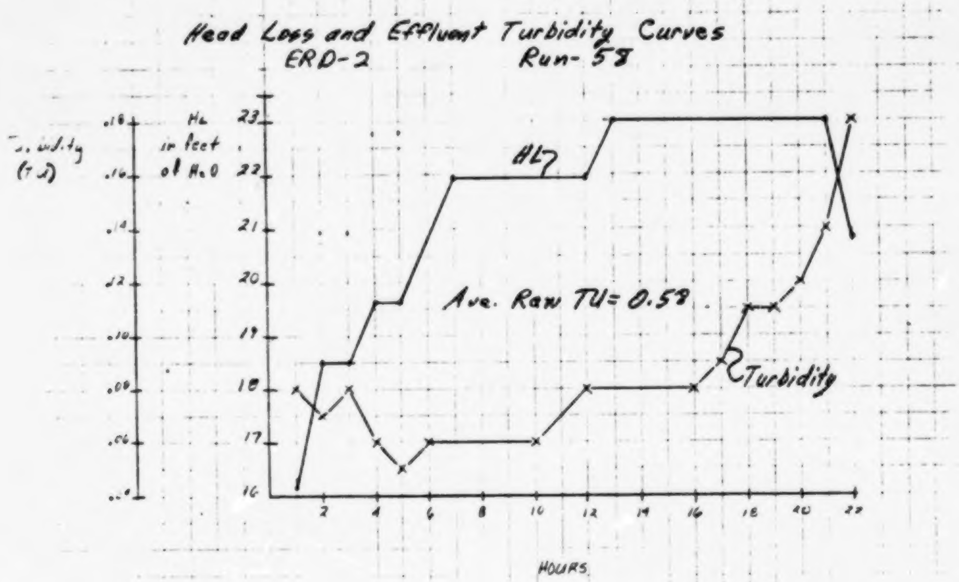

Head Loss and Effluent Turbidity Curves
ERD-2 Run-54

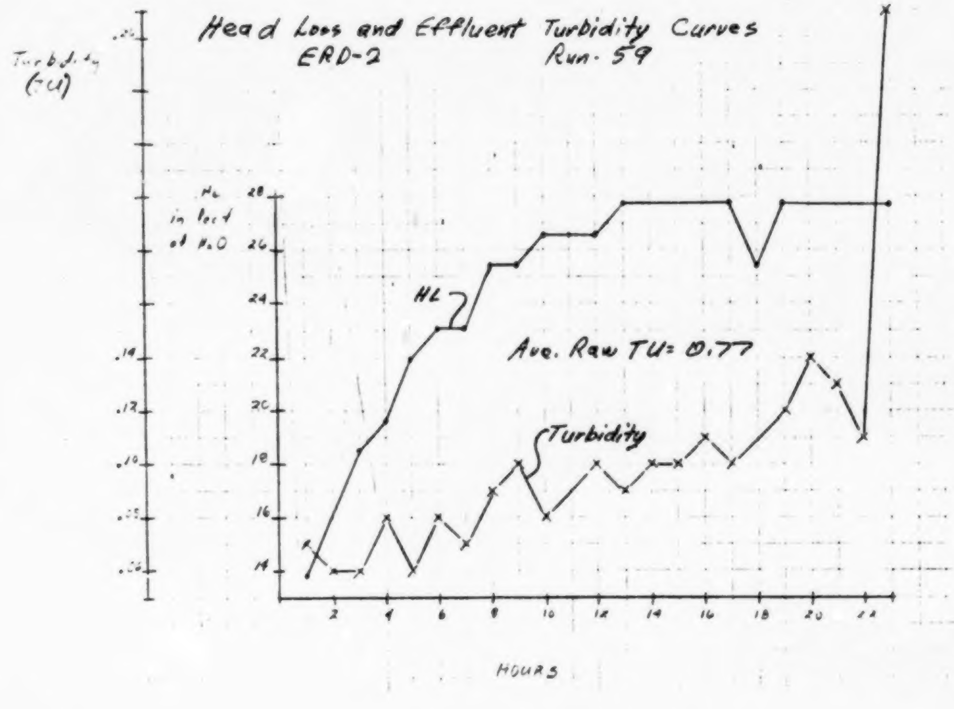
Head Loss and Effluent Turbidity Curves
ERD-2 Run-55



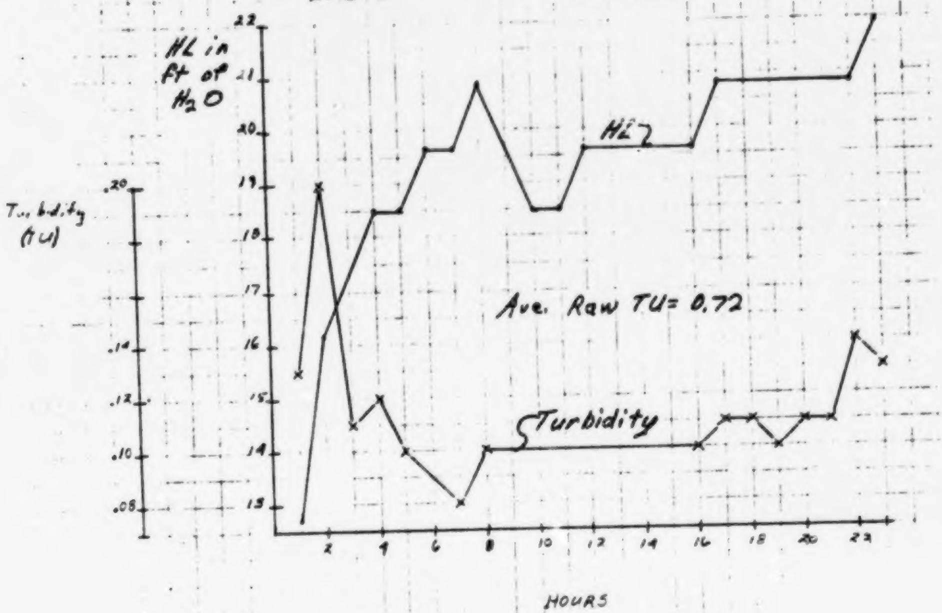

Head Loss and Effluent Turbidity Curves
ERD-2
Run-56
HL in feet of H2O
19.5
19.0
18.5
18.0
17.5
17.0
16.5
16.0
15.5
15.0
14.5
14.0
13.5
Turbidity (TU)
.14
.12
.10
.08
.06
.04
HL
Ave. Raw TU= 0.60
Turbidity
2
4
6
8
10
12
14
16
18
20
22
HOURS


Head Loss and Effluent Turbidity Curves
ERD-2
Run-57
HL in feet of H2O
21
20
19
18
17
16
15
14
13
12
11
10
Turbidity (TU)
.16
.14
.12
.10
.08
.06
HL
Ave. Raw TU= 0.80
Turbidity
2
4
6
8
10
12
14
16
18
HOURS


Head Loss and Effluent Turbidity Curves
ERD-2
Run-58
Turbidity (TU)
HL in feet of H2O
.18
.16
.14
.12
.10
.08
.06
.04
23
22
21
20
19
18
17
16
HL
Ave. Raw TU= 0.58
Turbidity
2
4
6
8
10
12
14
16
18
20
22
HOURS

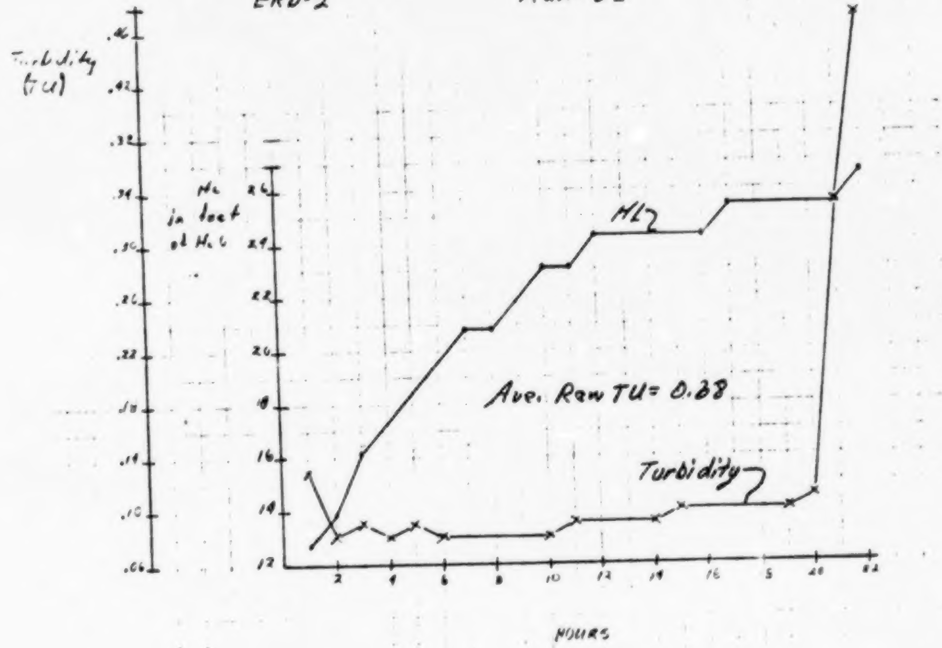

Head Loss and Effluent Turbidity Curves
ERD-2
Run-59
Turbidity (TU)
HL in feet of H2O
28
26
24
22
20
18
16
14
.14
.12
.10
.08
.06
HL
Ave. Raw TU= 0.77
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
HOURS

Head Loss and Effluent Turbidity Curves
ERD-2 Run-60

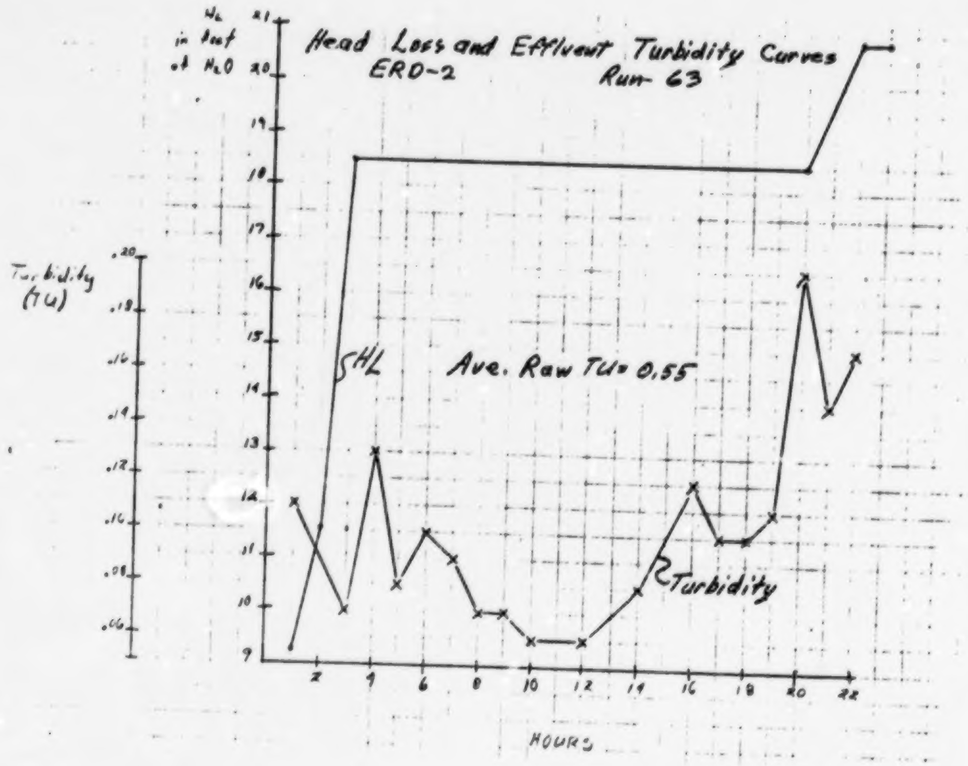


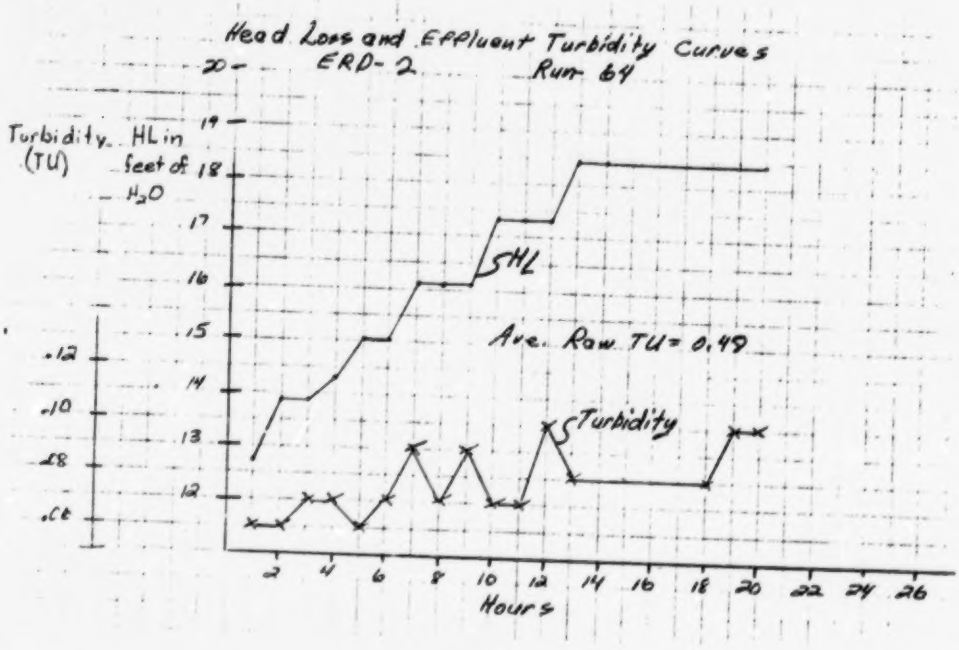
Ave. Raw TU= 0.72

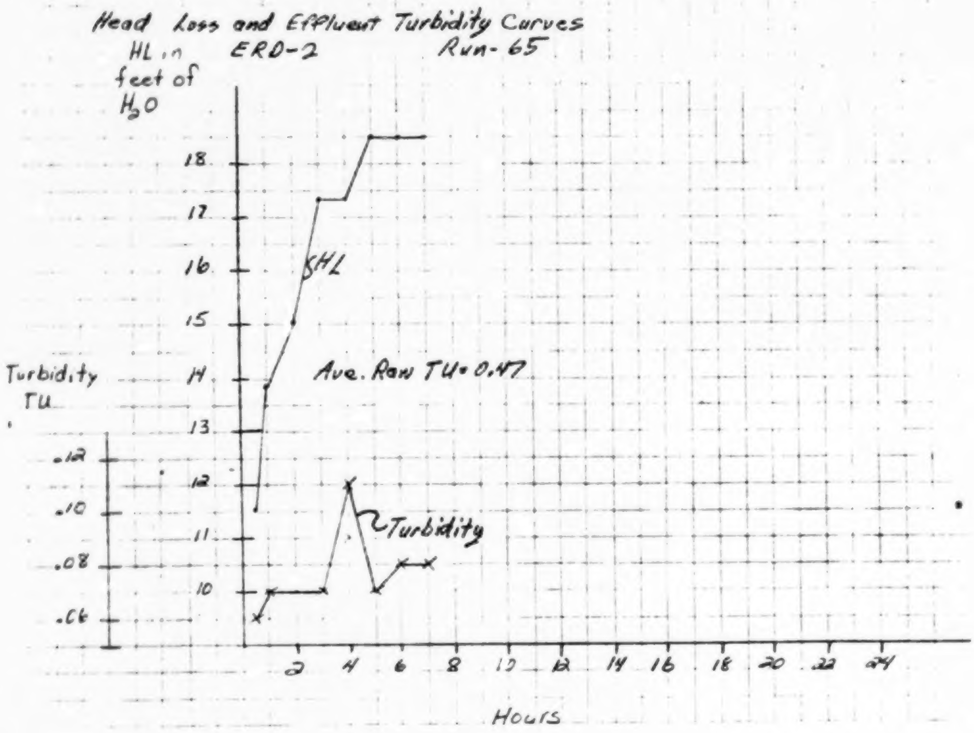
Head Loss and Effluent Turbidity Curves
ERD-2 Run-62

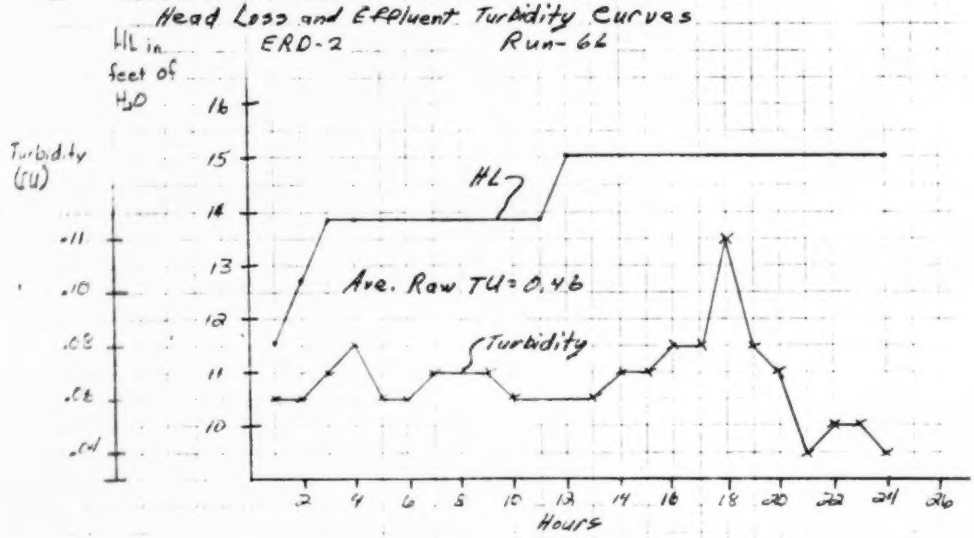


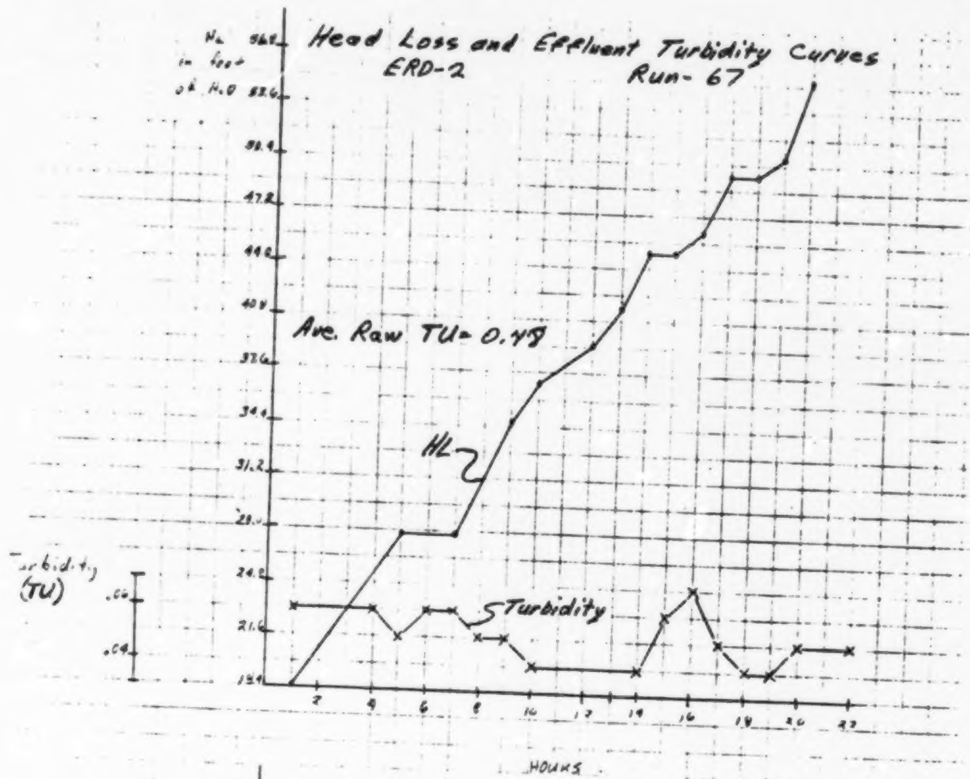
Ave. Raw TU= 0.38

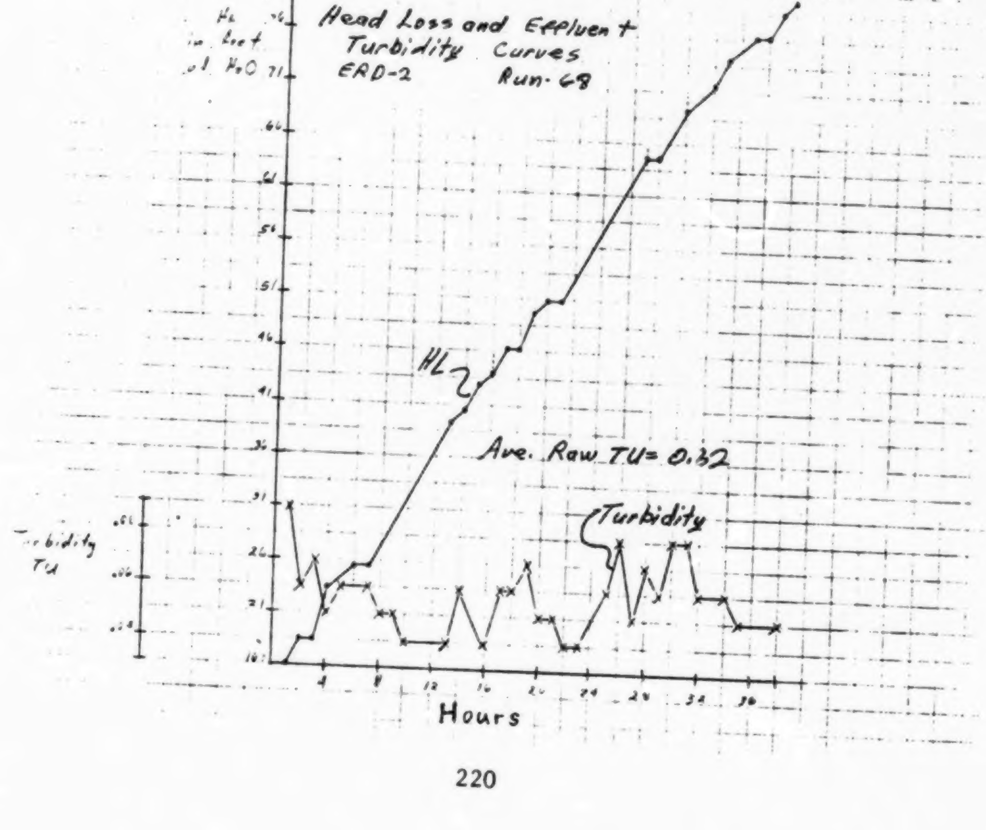

Head Loss and Effluent Turbidity Curves
ERD-2
Run- 63
HL in feet of H₂O
Turbidity (TU)
HL
Ave. Raw TU= 0.55
Turbidity
.20
.18
.16
.14
.12
.10
.08
.06
21
20
19
18
17
16
15
14
13
12
11
10
9
2
4
6
8
10
12
14
16
18
20
22
HOURS

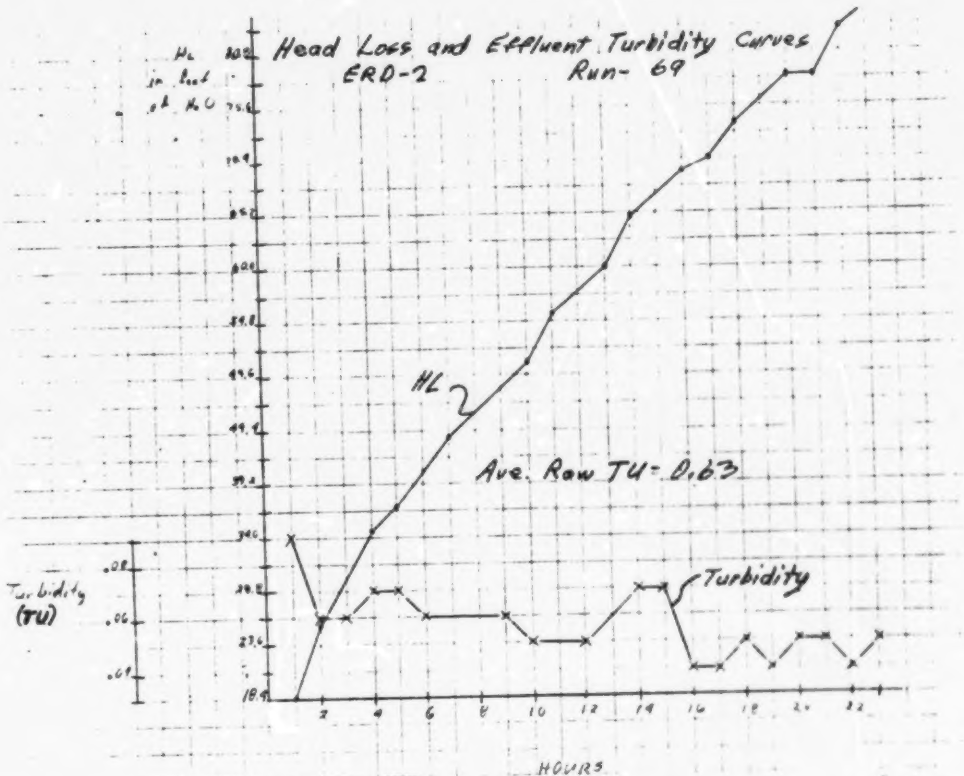

Head Loss and Effluent Turbidity Curves
ERD- 2
Run- 64
Turbidity (TU)
HL in feet of H₂O
HL
Ave. Raw TU= 0.49
Turbidity
20
19
18
17
16
15
14
13
12
.12
.10
.08
.06
2
4
6
8
10
12
14
16
18
20
22
24
26
Hours

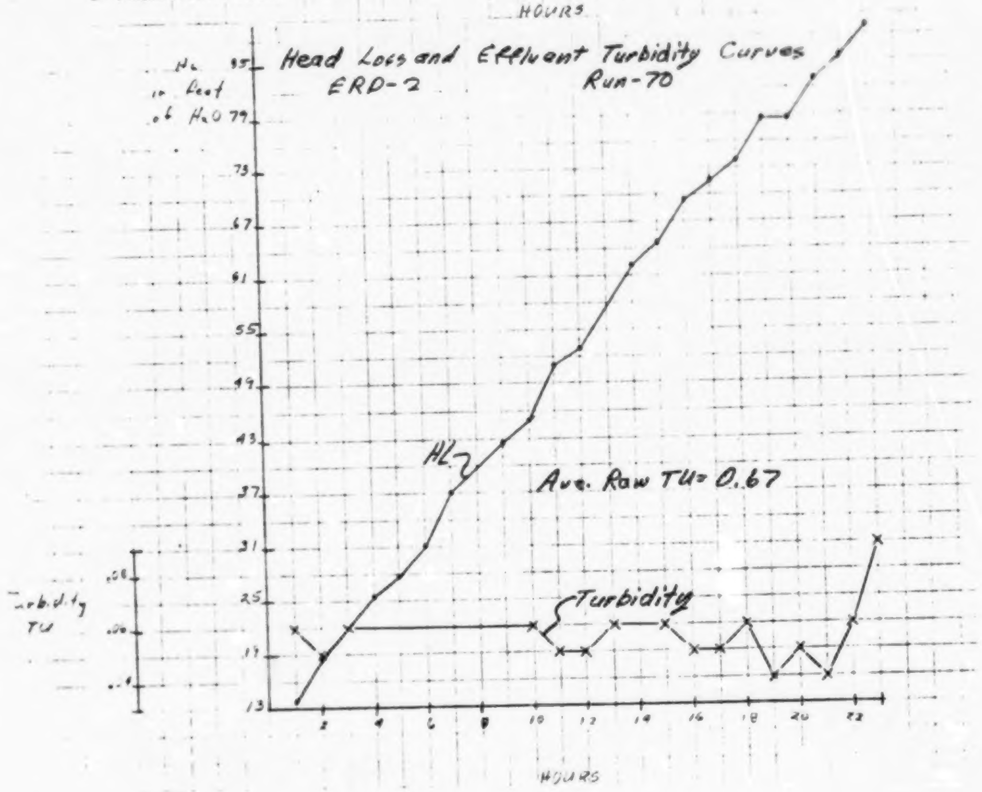

Head Loss and Effluent Turbidity Curves
ERD-2
Run-65
HL in feet of H_2O
Turbidity TU
18
17
16
15
14
13
12
11
10
.12
.10
.08
.06
HL
Ave. Raw TU=0.47
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
Hours

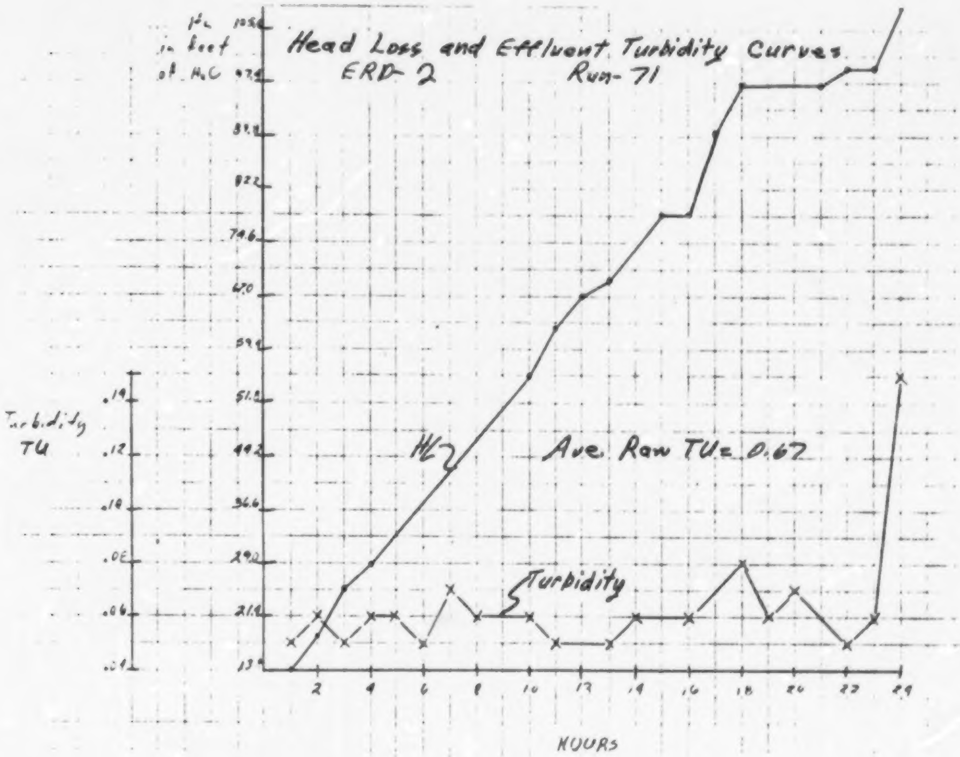

Head Loss and Effluent Turbidity Curves
ERD-2
Run-66
HL in feet of H_2O
Turbidity (TU)
16
15
14
13
12
11
10
.11
.10
.08
.06
.04
HL
Ave. Raw TU=0.46
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
26
Hours

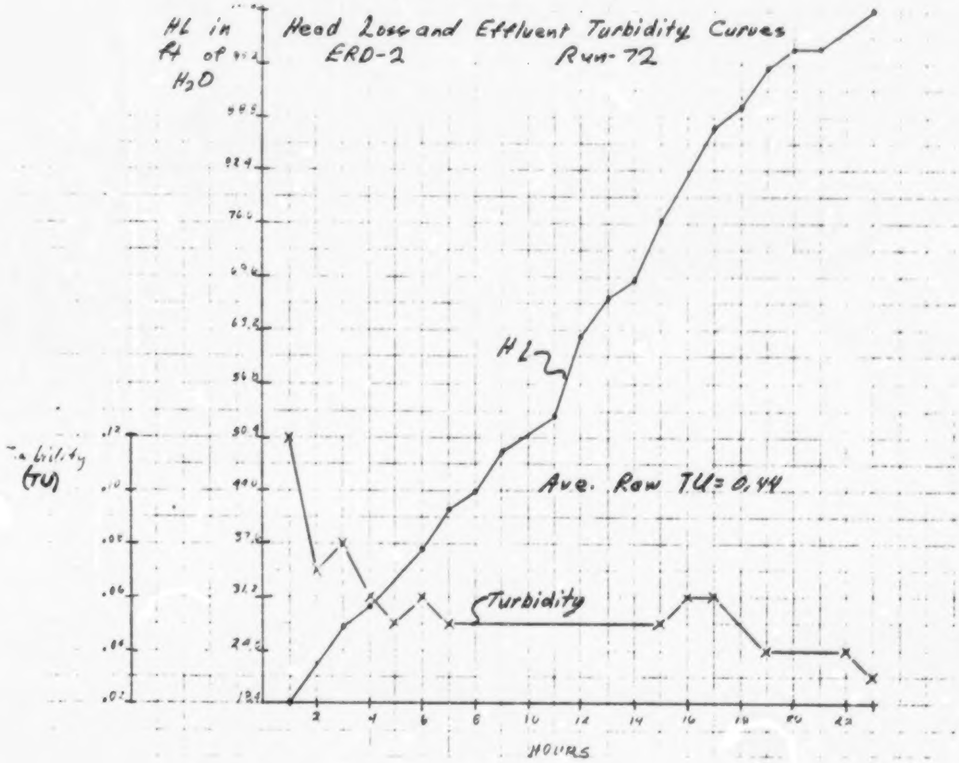

Head Loss and Effluent Turbidity Curves
ERD-2
Run- 67
HL in feet of H₂O
56.8
53.6
50.4
47.2
44.0
40.8
37.6
34.4
31.2
28.0
24.8
21.6
18.4
Turbidity (TU)
.06
.04
Ave. Raw TU= 0.48
HL
Turbidity
2
4
6
8
10
12
14
16
18
20
22
Hours

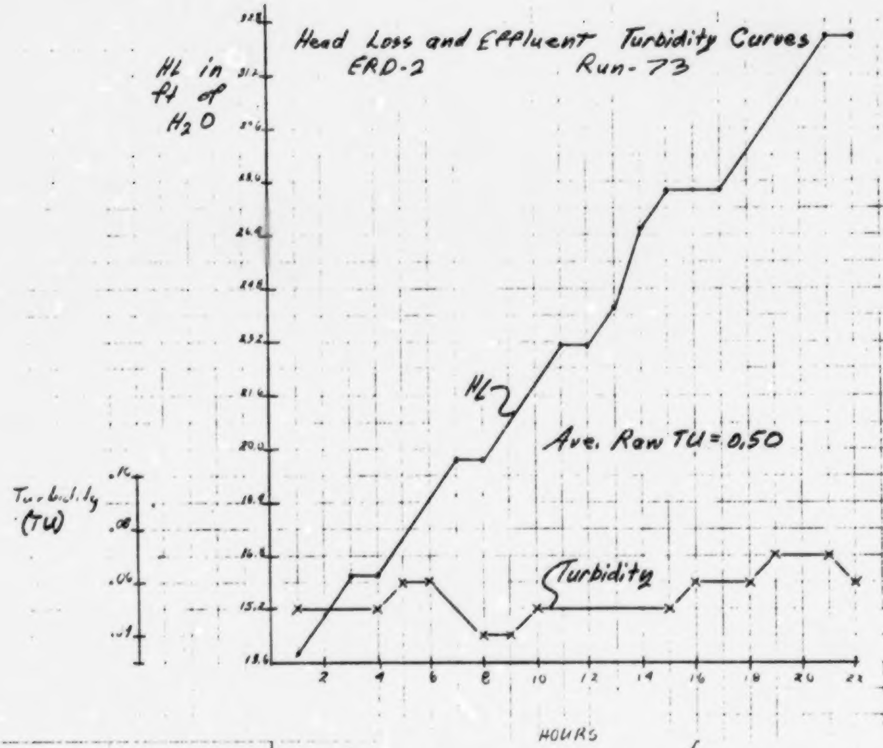

Head Loss and Effluent Turbidity Curves
ERD-2
Run- 68
HL in feet of H₂O
76
71
66
61
56
51
46
41
36
31
26
21
16
Turbidity TU
.08
.06
.04
HL
Ave. Raw TU= 0.32
Turbidity
4
8
12
16
20
24
28
32
36
Hours

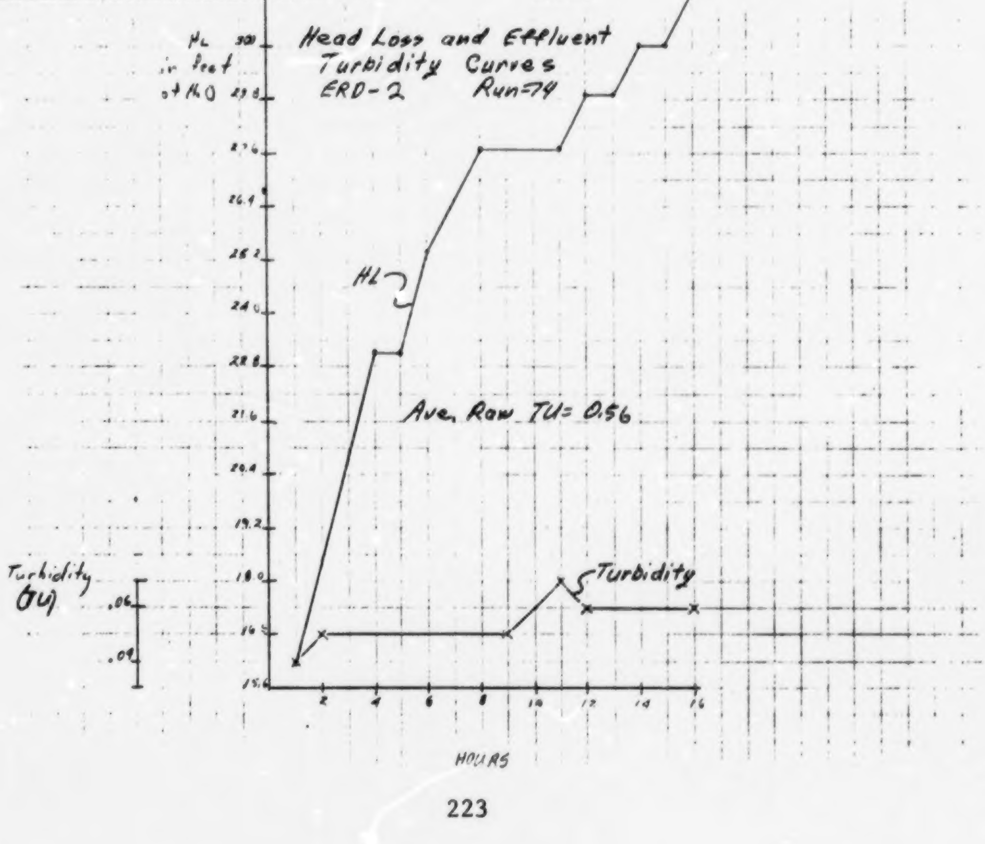

Head Loss and Effluent Turbidity Curves
ERD-2
Run- 69
HL in feet of H2O
102
75.6
70.9
65.0
60.0
54.8
49.6
44.4
39.2
34.0
28.8
23.6
18.4
Turbidity (TU)
.08
.06
.04
HL
Ave. Raw TU= 0.63
Turbidity
2
4
6
8
10
12
14
16
18
20
22
HOURS


Head Loss and Effluent Turbidity Curves
ERD-2
Run-70
HL in feet of H2O
95
79
73
67
61
55
49
43
37
31
25
19
13
Turbidity TU
.08
.06
.04
HL
Ave. Raw TU= 0.67
Turbidity
2
4
6
8
10
12
14
16
18
20
22
HOURS


Head Loss and Effluent Turbidity Curves
ERD-2
Run-71
HL in feet of H2O
105.0
97.4
89.8
82.2
74.6
67.0
59.4
51.8
44.2
36.6
29.0
21.4
13.8
Turbidity TU
.14
.12
.10
.08
.06
.04
HL
Ave. Raw TU= 0.67
Turbidity
2
4
6
8
10
12
14
16
18
20
22
24
HOURS


HL in ft of H2O
Head Loss and Effluent Turbidity Curves
ERD-2
Run-72
95.2
88.8
82.4
76.0
69.6
63.2
56.8
50.4
44.0
37.6
31.2
24.8
18.4
Turbidity (TU)
.12
.10
.08
.06
.04
.02
HL
Ave. Raw TU= 0.44
Turbidity
2
4
6
8
10
12
14
16
18
20
22
HOURS


Head Loss and Effluent Turbidity Curves
ERD-2 Run-73
HL in ft of H_2O
32.8
31.2
29.6
28.0
26.4
24.8
23.2
21.6
20.0
18.4
16.8
15.2
13.6
Turbidity (TU)
.10
.08
.06
.04
HL
Ave. Raw TU = 0.50
Turbidity
2
4
6
8
10
12
14
16
18
20
22
HOURS


Head Loss and Effluent Turbidity Curves
ERD-2 Run=74
HL in feet of H_2O
30.0
28.8
27.6
26.4
25.2
24.0
22.8
21.6
20.4
19.2
18.0
16.8
15.6
Turbidity (TU)
.06
.04
HL
Ave. Raw TU = 0.56
Turbidity
2
4
6
8
10
12
14
16
HOURS

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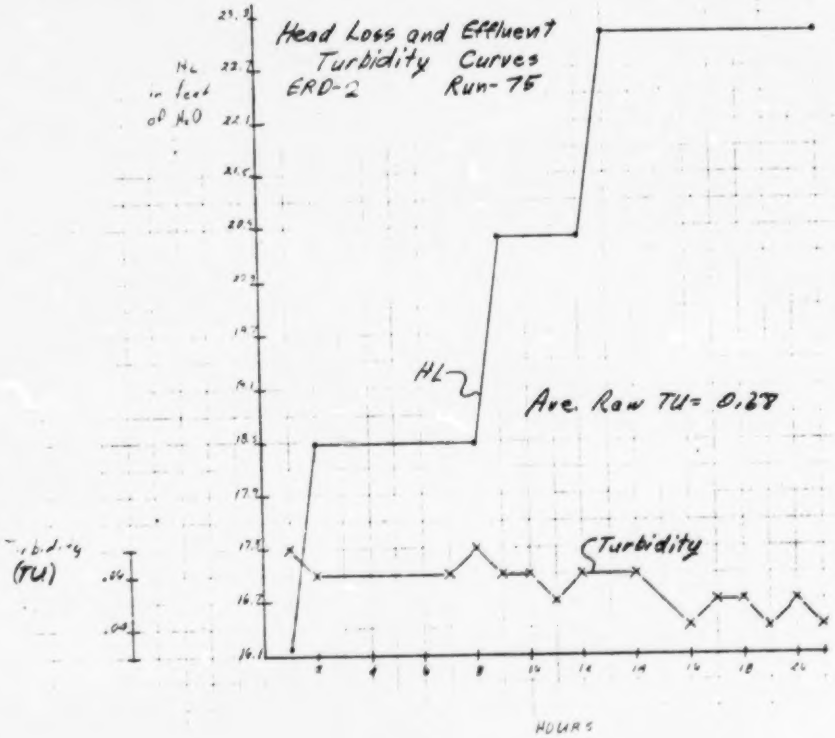
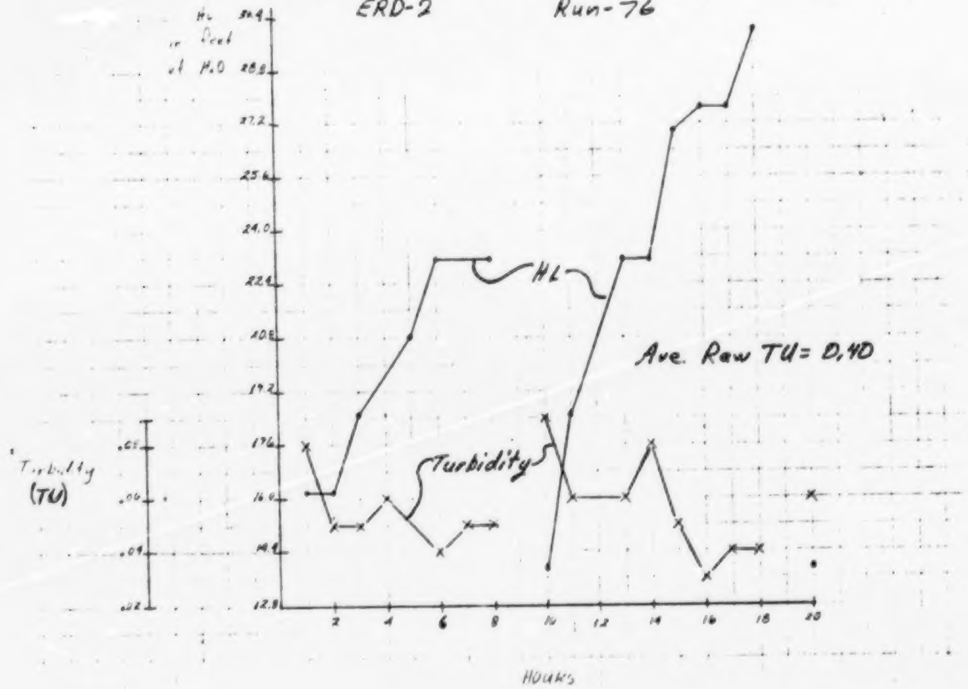
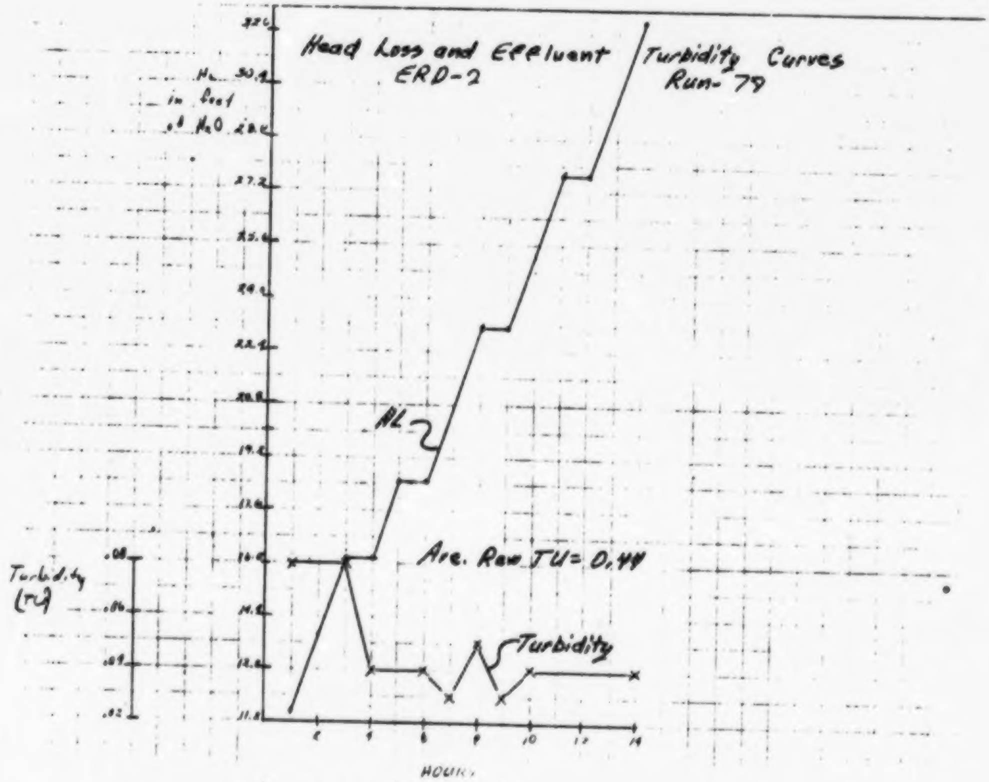
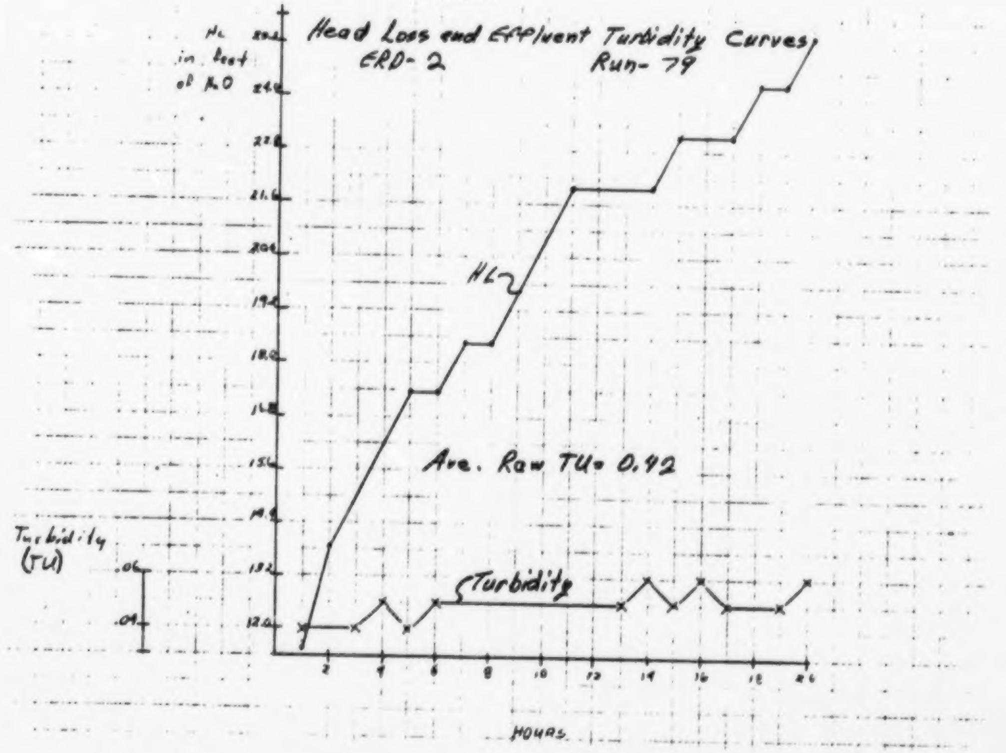


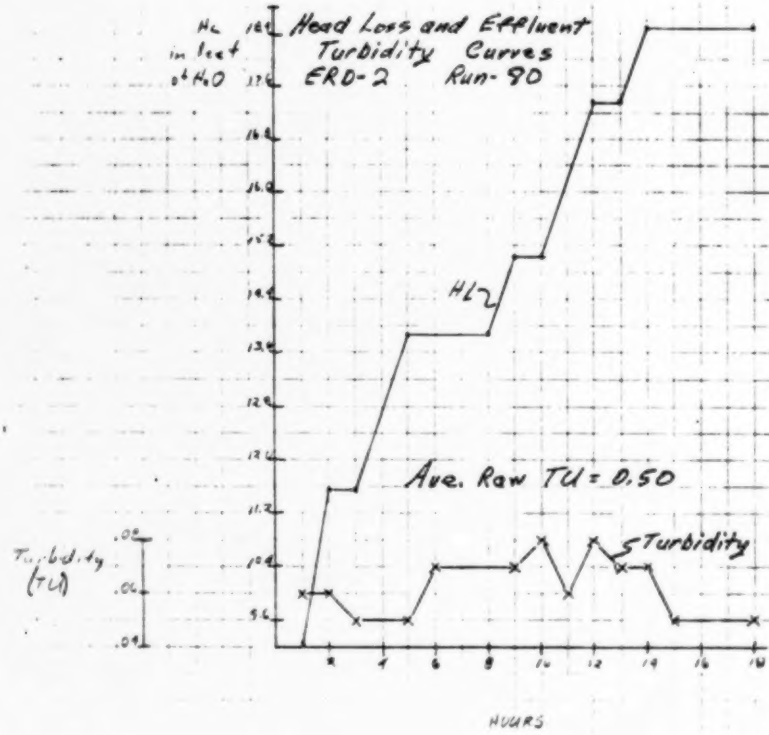
Head Loss and Effluent Turbidity Curves
ERD-2 Run-75

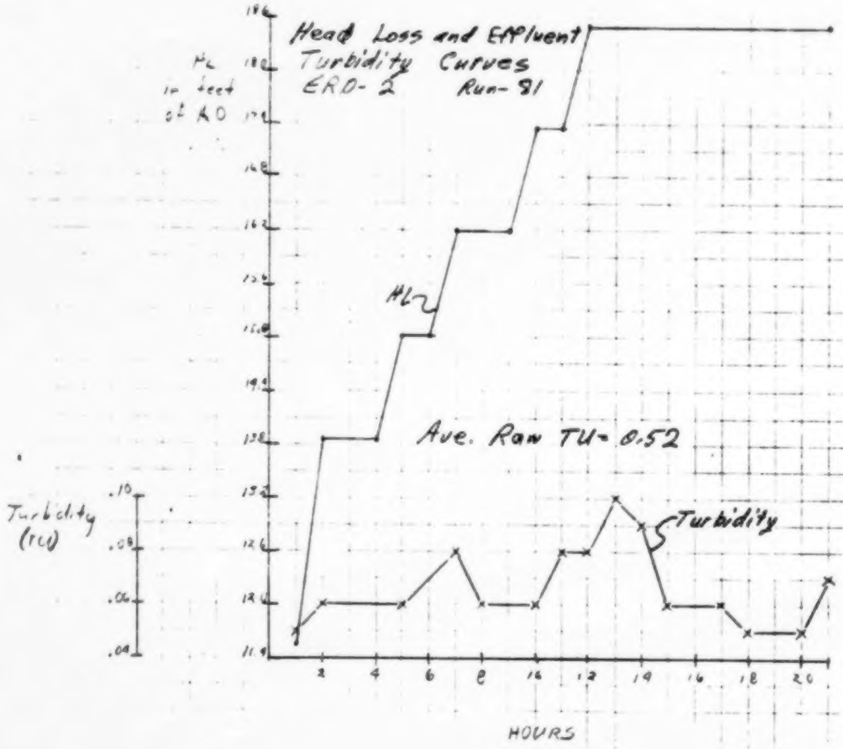


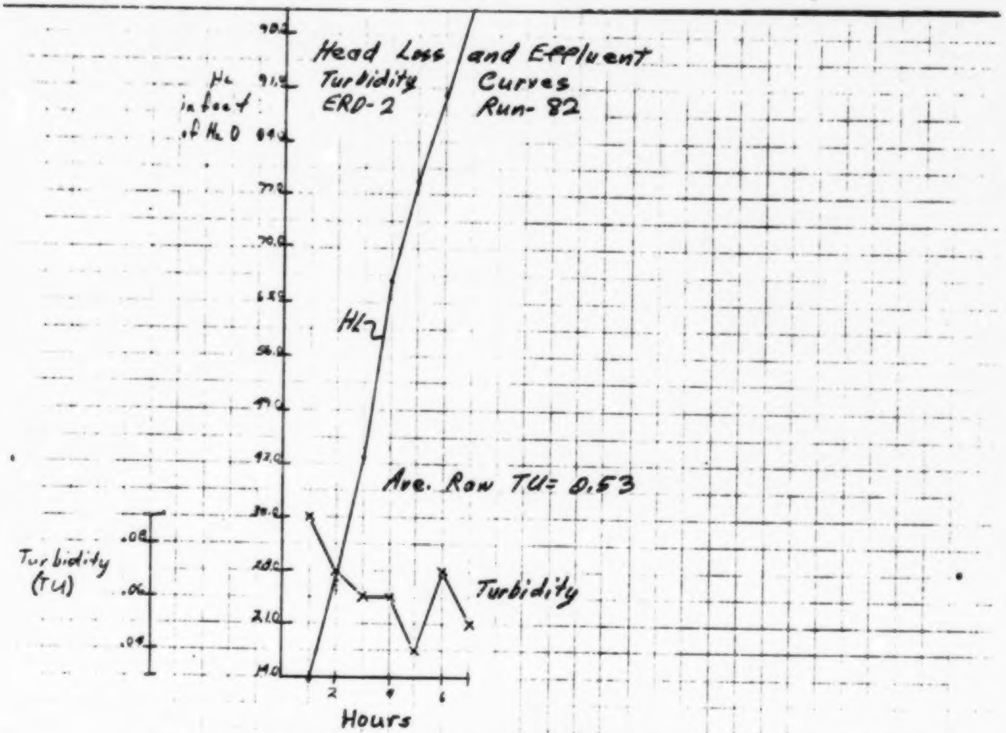
Head Loss and Effluent Turbidity Curves
ERD-2 Run-76

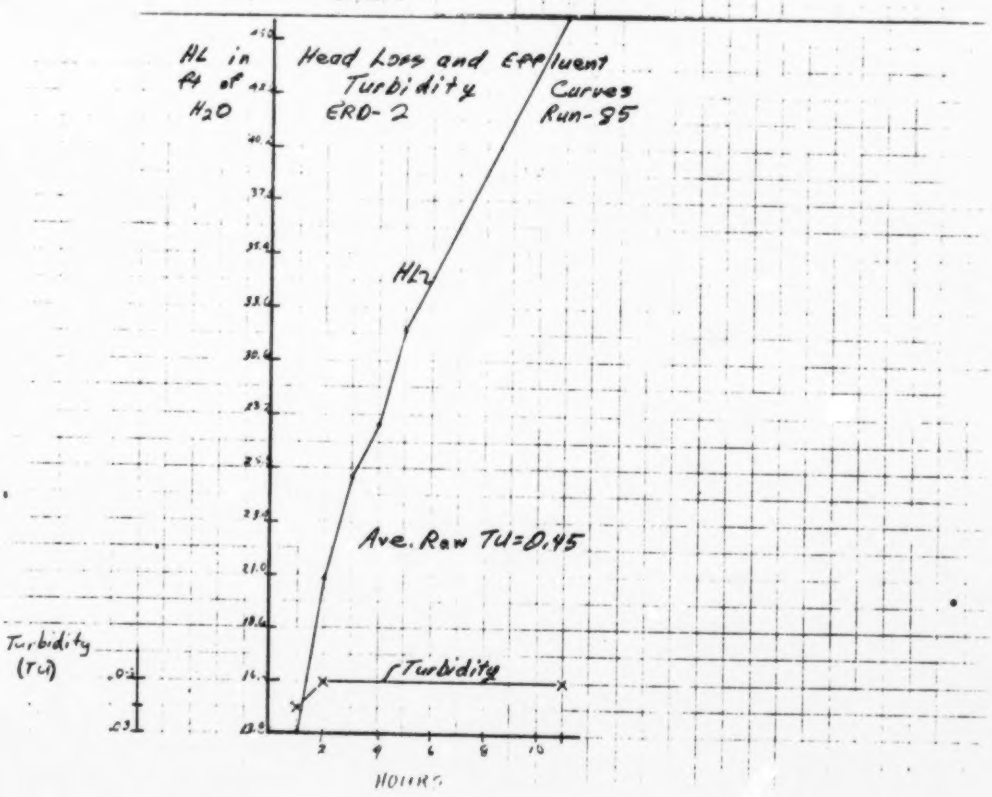

Head Loss and Effluent Turbidity Curves
ERD-2
Run- 79
HL in feet of H₂O
32.0
30.4
28.8
27.2
25.6
24.0
22.4
20.8
19.2
17.6
16.0
14.4
12.8
11.2
HL
Ave. Raw TU= 0.44
Turbidity (TU)
.08
.06
.04
.02
Turbidity
2
4
6
8
10
12
14
HOURS

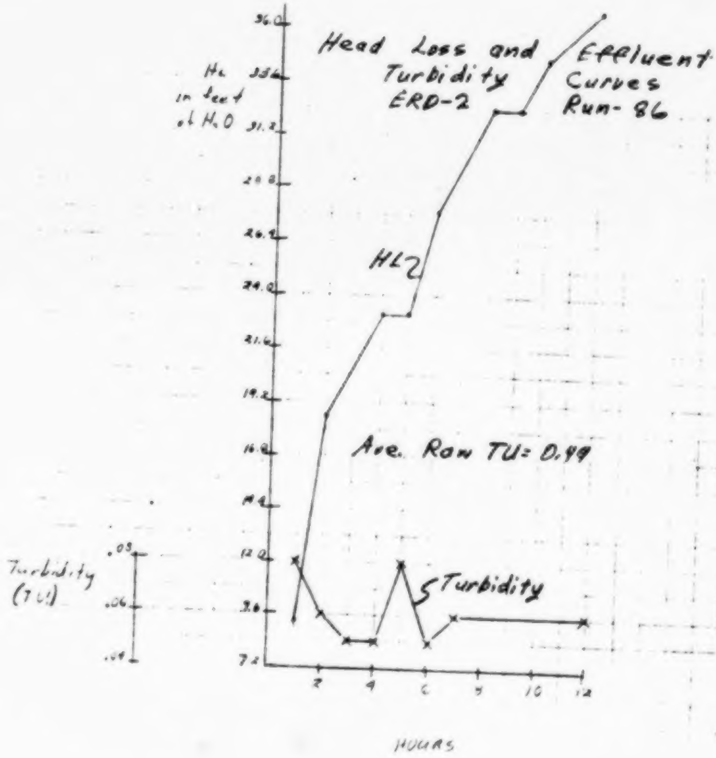

Head Loss and Effluent Turbidity Curves
ERD- 2
Run- 79
HL in feet of H₂O
25.2
24.0
22.8
21.6
20.4
19.2
18.0
16.8
15.6
14.4
13.2
12.0
HL
Ave. Raw TU= 0.42
Turbidity (TU)
.06
.04
Turbidity
2
4
6
8
10
12
14
16
18
20
HOURS


Head Loss and Effluent
Turbidity Curves
ERD-2 Run-90
HL in feet of H2O
18.4
17.6
16.8
16.0
15.2
14.4
13.6
12.8
12.0
11.2
10.4
9.6
HL
Ave. Raw TU = 0.50
Turbidity (TU)
.08
.06
.04
Turbidity
2
4
6
8
10
12
14
16
18
HOURS


Head Loss and Effluent
Turbidity Curves
ERD-2 Run-81
HL in feet of H2O
18.6
18.0
17.4
16.8
16.2
15.6
15.0
14.4
13.8
13.2
12.6
12.0
11.4
HL
Ave. Raw TU = 0.52
Turbidity (TU)
.10
.08
.06
.04
Turbidity
2
4
6
8
10
12
14
16
18
20
HOURS


Head Loss and Effluent
Turbidity Curves
ERD-2
Run- 82
HL in feet of H_2O
HL
Ave. Raw TU= 0.53
Turbidity (TU)
Turbidity
.08
.06
.04
14.0
21.0
28.0
42.0
70.0
2
4
6
Hours


Head Loss and Effluent
Turbidity Curves
ERD-2
Run-85
HL in ft of H_2O
HL
Ave. Raw TU=0.45
Turbidity (TU)
Turbidity
.03
21.0
30.6
33.0
35.4
37.8
40.2
2
4
6
8
10
HOURS


Head Loss and Effluent Turbidity Curves
ERD-2
Run-86
HL in feet of H₂O
36.0
33.6
31.2
28.8
26.4
24.0
21.6
19.2
16.8
14.4
12.0
9.6
7.2
HL
Ave. Raw TU= 0.49
Turbidity (TU)
.08
.06
.04
Turbidity
2
4
6
8
10
12
HOURS